CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
ALAMEDA COUNTYWIDE NPDES MUNICIPAL STORMWATER PERMIT

ORDER R2-2003-0021
NPDES PERMIT NO. CAS0029831

FOR THE CITIES OF ALAMEDA, ALBANY, BERKELEY, DUBLIN, EMERYVILLE, FREMONT, HAYWARD, LIVERMORE, NEWARK, OAKLAND, PIEDMONT, PLEASANTON, SAN LEANDRO, UNION CITY, ALAMEDA COUNTY (UNINCORPORATED AREA), THE ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, AND ZONE 7 OF THE ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, WHICH HAVE JOINED TOGETHER TO FORM THE ALAMEDA COUNTYWIDE CLEAN WATER PROGRAM.

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REISSUING WASTE DISCHARGE REQUIREMENTS FOR:

THE CITIES OF ALAMEDA, ALBANY, BERKELEY, DUBLIN, EMERYVILLE, FREMONT, HAYWARD, LIVERMORE, NEWARK, OAKLAND, PIEDMONT, PLEASANTON, SAN LEANDRO, UNION CITY, ALAMEDA COUNTY (UNINCORPORATED AREA), THE ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, AND ZONE 7 OF THE ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, WHICH HAVE JOINED TOGETHER TO FORM THE ALAMEDA COUNTYWIDE CLEAN WATER PROGRAM

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter referred to as the Regional Board) finds that:

FINDINGS

Finding 1: Incorporation of Fact Sheet

1. The Fact Sheet for the Alameda Countywide Clean Water Program NPDES Permit Reissuance includes cited references and additional explanatory information in support of the requirements of this Permit. This information, including any supplements thereto, and any future response to comments on the Revised Tentative Order, is hereby incorporated by reference.

Findings 2-3: Existing Permit

2. The Cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, Union City, Alameda County (Unincorporated area), the Alameda County Flood Control and Water Conservation District, and Zone 7 of the Alameda County Flood Control and Water Conservation District (hereinafter collectively referred to as the Permittees and individually as the Permittee) have joined together to form the Alameda Countywide Clean Water Program (hereinafter referred to as the Program).

3. The Permittees are currently subject to National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0029831 issued by Order No. 97-030 on February 19, 1997, and modified by Order No. 99-049 on July 21, 1999.

Findings 4-5: Permit Coverage

4. The Permittees each have jurisdiction over and/or maintenance responsibility for their respective municipal separate storm drain systems and/or watercourses in Alameda County. (See Attachment C: Municipalities and Major Open Creeks and Waterbodies in Alameda County)

5. Federal, state or regional entities within the Permittees' boundaries, not currently named in this Order, operate storm drain facilities and/or discharge stormwater to the storm drains and watercourses covered by this Order. The Permittees may lack jurisdiction over these entities. Consequently, the Regional Board recognizes that the Permittees should not be held responsible for such facilities and/or discharges. The Regional Board will consider such facilities for coverage in 2003 under its NPDES permitting scheme pursuant to United States Environmental Protection Agency (US EPA) Phase II stormwater regulations. Under Phase II, the Regional

Board intends to permit these federal, state, and regional entities either directly, or potentially through use of a Statewide Phase II NPDES General Permit.

Findings 6-8: Permit Background

6. On August 6, 2001, the Permittees and the Program submitted a permit re-application package that included a completed Application/Report of Waste Discharge for reissuance of waste discharge requirements under the NPDES permit referenced in Finding 3 (hereinafter referred to as the Permit) to discharge stormwater runoff from storm drains and watercourses under the Permittees' jurisdictions.

7. The application requirements that the Regional Board has determined to be applicable to the Permittees include submittal of a proposed Stormwater Quality Management Plan to reduce the discharge of pollutants in stormwater to the maximum extent practicable (MEP) and to effectively prohibit non-stormwater discharges into municipal storm drain systems and watercourses within the Permittees' jurisdictions.

8. The application incorporated by reference the Program's 2001-2008 Stormwater Quality Management Plan. The intent of the Stormwater Quality Management Plan is to reduce the discharge of pollutants in stormwater to the maximum extent practicable, and in a manner designed to achieve compliance with water quality standards and objectives, and effectively prohibit non-stormwater discharges into municipal storm drain systems and watercourses within the Permittees' jurisdictions. The Stormwater Quality Management Plan fulfills the Regional Board's permit application requirements, and it will be improved and revised in accordance with the provisions of this Order.

Findings 9-15: Stormwater Quality Management Plan

9. The Stormwater Quality Management Plan describes a framework for management of stormwater discharges during the term of the Permit. The title page and table of contents of the Program's 2001-2008 Stormwater Quality Management Plan (Management Plan) are appended to this Order as Attachment A. The Management Plan describes the Program's goals and objectives and the annual reporting and program evaluation process. Performance Standards, which represent the baseline level of effort required of each of the Permittees, are contained in Section 5 of the Management Plan. The Performance Standards serve as a reference point upon which to base effectiveness evaluations and consideration of opportunities for improving them.

10. The Management Plan, including the Performance Standards, is incorporated in the Permit by reference and enforceable as such, and is considered an enforceable component of this Order.

11. Program activities are focused on the following components:

- Regulatory Compliance, Planning, Program Management
- Annual Reporting and Evaluation
- Watershed Assessment
- Monitoring and Special Studies
- Pollutants of Concern
- Public Information and Participation
- Municipal Maintenance Activities
- Illicit Discharge Controls
- Industrial and Commercial Discharge Controls

- New Development, Significant Redevelopment, and Construction Controls

12. Through the Public Information and Participation (PIP) component, the Program provides information to residents in order to educate them about stormwater pollution and change behaviors that adversely affect water quality. PIP activities are conducted locally, countywide and in collaboration with other regional agencies. The Management Plan states that, at a minimum, annual PIP efforts must include general outreach, targeted outreach (including outreach to municipal staff within each Permittees' jurisdictions), educational programs, and citizen participation activities. The Management Plan also states that one of the PIP component objectives is to evaluate component effectiveness of the PIP activities and make improvements so as to increase effectiveness.

13. The Management Plan contains Performance Standards and supporting documents to address the post-construction and construction phase impacts of new development and significant redevelopment projects on stormwater quality.

14. The goal of the Industrial and Commercial Discharge Controls component is to reduce or eliminate adverse water quality impacts from activities conducted at any industrial and commercial site within the Permittees' jurisdictions that have a potential for significant urban runoff pollution. The Management Plan requires each Permittee to develop a five-year Illicit Discharge Control Action Plan (Action Plan) to reduce, control and/or otherwise address sources of discharges. The Action Plan will ensure that each Permittee identifies high-priority areas for inspection and investigation, regularly surveys those areas at a specified frequency, identifies which staff within each Permittee will be responsible for completing field surveys, identifies how illicit discharge control activities are documented, and ensures that appropriate enforcement is taken for problem discharges. In short, it will serve as the framework document for each Permittee to appropriately control illicit discharges.

15. The Program and the Permittees are committed to a process of evaluating the effectiveness and improving the Performance Standards and plans contained in the Management Plan, which includes seeking new opportunities to control stormwater pollution and to protect beneficial uses. Changes and updates to control measures, Best Management Practices, and Performance Standards will be documented in the Annual Report and, following Regional Board approval, will be considered part of the Management Plan and an enforceable component of this Order.

Finding 16: Cooperative Effort Among Entities

16. The Program participates in, and contributes to, joint efforts with other entities, including regulatory agencies, public benefit corporations, universities, and citizens' groups. These entities may take a lead role in addressing particular sources because they are regional, statewide or national in scope, because they have different skills or expertise, or because they have appropriate regulatory authority.

Finding 17: Annual Reviews

17. The Regional Board staff will perform, in coordination with the Permittees and interested persons, an annual performance review and evaluation of the Program, the Permittees and their compliance activities. The reviews are a useful means of evaluating overall Program effectiveness, implementation of Performance Standards, and improvement opportunities. The following areas will be evaluated:

    a. Overall Program and Permittee effectiveness and compliance;

b. Performance Standard improvements;

c. Permittees' coordination and implementation of watershed-based management actions (e.g., flood management, new development and construction, industrial source controls, public information/participation, monitoring);

d. Partnership opportunities with other Bay Area stormwater programs; and

e. Consistency in meeting maximum extent practicable measures within the Program and with other regional, statewide, and national municipal stormwater management programs.

Findings 18-25: Applicable Federal, State and Regional Regulations

18. Section 402(p) of the federal Clean Water Act (CWA), as amended by the Water Quality Act of 1987, requires NPDES permits for stormwater discharges from separate municipal storm drain systems, stormwater discharges associated with industrial activity (including construction activities), and designated stormwater discharges which are considered significant contributors of pollutants to waters of the United States. On November 16, 1990, US EPA published regulations (40 CFR Part 122) which prescribe permit application requirements for municipal separate storm drain systems pursuant to Section 402(p) of the CWA. On May 17, 1996, US EPA published an Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems (MS4s), which provided guidance on permit application requirements for regulated MS4s.

19. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995, which was approved by the State Water Resources Control Board and the Office of Administrative Law on July 21 and November 13 of 1995, respectively. This updated and consolidated plan represents the Regional Board's master water quality control planning document. The Urban Runoff Management, Comprehensive Control Program section of the Basin Plan requires the Permittees to address existing water quality problems and prevent new problems associated with urban runoff through the development and implementation of a comprehensive control program focused on reducing current levels of pollutant loading to storm drains to the maximum extent practicable. The Basin Plan comprehensive program requirements are designed to be consistent with federal regulations (40 CFR Parts 122-124) and are implemented through issuance of NPDES permits to owners and operators of storm drain systems. A summary of the regulatory provisions is contained in Title 23 of the California Code of Regulations at Section 3912. The Basin Plan identifies beneficial uses and establishes water quality objectives for surface waters in the Region, as well as effluent limitations and discharge prohibitions intended to protect those uses. This Order implements the plans, policies, and provisions of the Regional Board's Basin Plan.

20. The State Water Resources Control Board (State Board) has issued NPDES general permits for the regulation of stormwater discharges associated with industrial activities and construction activities. To effectively implement the New Development (and significant redevelopment) and Construction Controls, Illicit Discharge Controls, and Industrial and Commercial Discharge Controls components of the Management Plan, the Permittees will conduct investigations and local regulatory activities at industries and construction sites covered by these general permits. However, under the Clean Water Act, the Regional Board cannot delegate to the Permittees its own authority to enforce these general permits. Therefore, Regional Board staff intend to work cooperatively with the Permittees to ensure that industries and construction sites within the

Permittees' jurisdictions are in compliance with applicable general permit requirements and are not subject to uncoordinated stormwater regulatory activities.

21. The beneficial uses of Central, Lower and South San Francisco Bay, its tributary streams and contiguous water bodies, and other water bodies within the drainage basin are listed in the Basin Plan.

22. The Regional Board considers stormwater discharges from urban and developing areas in the San Francisco Bay Region, such as Alameda County, to be significant sources of certain pollutants in waters of the Region that may be causing or threatening to cause or contribute to water quality impairment. Furthermore, as delineated on the CWA Section 303(d) list, the Regional Board has found that there is a reasonable potential that municipal stormwater discharges may cause or contribute to an excursion above water quality standards for: mercury, PCBs, dioxins, furans, diazinon, dieldrin, chlordane, DDT, copper, and selenium in Central San Francisco Bay; diazinon in all urban creeks in Alameda County; and trash and low dissolved oxygen in Lake Merritt. In accordance with CWA Section 303(d), the Regional Board is required to establish Total Maximum Daily Loads (TMDLs) for these pollutants to these waters in order to gradually eliminate impairment and attain water quality standards. Therefore, certain early actions and/or further assessments by the Permittees are warranted and required pursuant to this Order.

23. The Regional Board considers the Management Plan an essential component of an urban watershed management plan for urbanized portions of Alameda County, and the portions of Alameda County that are currently being developed. The Management Plan is intended to provide a framework for protection and restoration of Alameda County watersheds and the Central, Lower and South San Francisco Bay in part through effective and efficient implementation of appropriate control measures for sources of pollutants within the watersheds.

24. The San Francisco Estuary Project, established pursuant to CWA Section 320, culminated in June 1993 with completion of its Comprehensive Conservation and Management Plan (CCMP) for the preservation, restoration, and enhancement of the San Francisco Bay-Delta Estuary. The CCMP includes recommended actions in the areas of aquatic resources, wildlife, wetlands, water use, pollution prevention and reduction, dredging and waterway modification, land use, public involvement and education, and research and monitoring. Recommended actions which may, in part, be addressed through implementation of the Permittees' Management Plan include, but are not limited to, the following:

    a. Action PO-2.1: Pursue a mass emissions strategy to reduce pollutant discharges into the Estuary from point and nonpoint sources and to address the accumulation of pollutants in estuarine organisms and sediments.

    b. Action PO-2.4: Improve the management and control of urban runoff from public and private sources.

    c. Action PO-2.5: Develop control measures to reduce pollutant loadings from energy and transportation systems.

    d. Action LU-1.1: Local General Plans should incorporate watershed protection plans to protect wetlands and stream environments and reduce pollutants in runoff.

    e. Action LU-3.1: Prepare and implement Watershed Management Plans that include the following complementary elements: 1) wetlands protection, 2) stream environment protection, and, 3) reduction of pollutants in runoff.

f. Action LU-3.2: Develop and implement guidelines for site planning and Best Management Practices.

g. Action PI-2.3: Work with educational groups, interpretive centers, decision-makers, and the general public to build awareness, appreciation, knowledge, and understanding of the Estuary's natural resources and the need to protect them. This would include how these natural resources contribute to and interact with social and economic values.

25. This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Division 13 of the Public Resources Code, Chapter 3, Section 21100, et. seq.) in accordance with Section 13389 of the California Water Code.

Findings 26-30: Nature of Discharges and Sources of Pollutants

26. The discharge consists of the surface runoff generated from various land uses in all the hydrologic sub basins in the basin which discharge into watercourses, which in turn flow into Central, Lower and South San Francisco Bay.

27. The quality and quantity of runoff discharges varies considerably and is affected by hydrology, geology, land use, season, and sequence and duration of hydrologic event. Pollutants of concern in these discharges are certain heavy metals, excessive sediment production from erosion due to anthropogenic activities, petroleum hydrocarbons from sources such as used motor oil, microbial pathogens of domestic sewage origin from illicit discharges, certain pesticides associated with the risk of acute aquatic toxicity, excessive nutrient loads which may cause or contribute to the depletion of dissolved oxygen and/or toxic concentrations and dissolved ammonia, trash which impairs beneficial uses including but not limited to support for aquatic life, and other pollutants which may cause aquatic toxicity in the receiving waters.

28. Certain pollutants present in stormwater and/or urban runoff may be derived from extraneous sources that the Permittees have limited or no direct jurisdiction over. Examples of such pollutants and their respective sources are polycyclic aromatic hydrocarbons (PAHs) which are products of internal combustion engine operation and other sources; heavy metals, such as copper from brake pad wear and zinc from tire wear; dioxins as products of combustion; mercury resulting from atmospheric deposition; and natural-occurring minerals from local geology. All of these pollutants, and others, may be deposited on paved surfaces, rooftops, and other impervious surfaces as fine airborne particles, thus yielding stormwater runoff pollution that is unrelated to the particular activity associated with a given new or redevelopment project.

29. It may be more efficient to manage airborne pollutants at their sources of release and/or through reformulating pollutant-generating products rather than through treatment of stormwater. However, unless restricted by jurisdictional limitations, Permittees can implement structural treatment control measures, or require developers to implement structural treatment control measures to reduce entry of these pollutants into stormwater and their discharge to receiving waters.

30. Retail gasoline outlets (RGOs), commonly referred to as "gas stations," are sources for pollutants of concern in stormwater and have been widely documented as such. The most common pollutants of concern in stormwater runoff from RGOs are heavy metals, petroleum hydrocarbons

(such as Polycyclic Aromatic Hydrocarbons (PAHs)), and oil and grease.[1] RGOs fall within the new development and significant redevelopment projects subject to Provision C.3 of this Order, when they meet the impervious surface thresholds within that Provision. Pursuant to Provision C. 3., as with any other project meeting the thresholds of that Provision, RGOs are required to incorporate appropriate source controls and design measures, and to appropriately treat stormwater runoff prior to discharge to the storm drain or local water. As with any commercial and/or industrial activity within the Permittees' jurisdictions that has the potential to discharge pollutants in stormwater runoff, RGOs may also be subject to regulation under other sections of the Permit and Management Plan, including the Illicit Discharge Control and Industrial and Commercial Discharge Control sections.

Findings 31-41 in Support of Provision C.3: New Development and Redevelopment Performance Standards

31. Urban Development Increases Pollutant Load, Volume, and Velocity of Runoff: During urban development two important changes occur. First, natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots. Natural vegetated soil can both absorb rainwater and remove pollutants providing a very effective natural purification process. Because pavement and concrete can neither absorb water nor remove pollutants, the natural purification characteristics of the land are lost. Secondly, urban development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc., which can be washed into the municipal separate storm sewer system. As a result of these two changes, the runoff leaving the developed urban area is significantly greater in volume, velocity and pollutant load than the pre-development runoff from the same area.

32. The pollutants found in urban runoff can have damaging effects on both human health and aquatic ecosystems. In addition, the increased flows and volumes of stormwater discharged from new impervious surfaces resulting from new development and redevelopment can significantly impact beneficial uses of aquatic ecosystems due to physical modifications of watercourses, such as bank erosion and widening of channels.

33. Water Quality Degradation Increases with Percent Imperviousness: The increased volume and velocity of runoff from developed urban areas can greatly accelerate the erosion of downstream natural channels. A number of studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of beneficial uses of downstream receiving waters. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 10% conversion from natural to impervious surfaces. Typical medium-density single-family home projects range between 25 to 60% impervious. Even at very low densities, such as 1-2 housing units per acre, standard subdivision designs can exceed the 10% imperviousness threshold that, as noted above, is theorized to be the threshold for degradation of streams and other waters with increasing

[1] *Retail Gasoline Outlets: New Development Design Standards for Mitigation of Stormwater Impacts* – California Water Quality Control Board, Los Angeles Region, and California Water Quality Control Board, San Diego Region, Technical Report, prepared by Radulescu, Swamikannu, and Hammer, 2001.

imperviousness of their catchment.[2] Studies on the impacts of imperviousness on beneficial uses of waters include "Urbanization of aquatic systems: Degradation thresholds, stormwater detection, and the limits of mitigation," Derek B. Booth and C. Rhett Jackson, Journal of the American Water Resources Association 33(5), Oct. 1997, pp. 1077-1089; "Urbanization and Stream Quality Impairment," Richard D. Klein, Water Resources Bulletin 15(4), Aug. 1979, pp. 948-963; "Stream channel enlargement due to urbanization," Thomas R. Hammer, Water Resources Research 8(6), Dec. 1972, pp. 1530- 1540; and, summaries of work on the impacts of imperviousness, including "The Importance of Imperviousness," in Watershed Protection Techniques 1(3), Fall 1994, pp. 100-111, and "Impervious surface coverage: The emergence of a key environmental indicator," Chester L. Arnold et al., Journal of the American Planning Association 62(2), Spring 1996, pp.243-259.

34. The Permittees have encouraged developers to minimize increases in impervious surfaces through a number of techniques such as those described in the Bay Area Stormwater Management Agencies Association's (BASMAA's) "Start at the Source Design Guidance Manual for Stormwater Quality Protection," 1999 edition (Start at the Source). One of the techniques recommended by Start at the Source is to use permeable pavements to infiltrate stormwater while still providing a stable load-bearing surface. For purposes of this Order, the Program may submit guidelines for use of these techniques for minimizing increases in impervious surfaces described in Start at the Source, implementation of which techniques will provide that such areas will not count toward the creation or replacement of impervious surfaces, or may be modeled differently for the purposes of sizing post-construction stormwater treatment controls, for approval of the Regional Board's Executive Officer.

35. Because land use planning is where urban development begins, it is the phase in which the greatest and most cost-effective opportunities to protect water quality in new and redevelopment exist. When a Permittee incorporates policies and principles designed to safeguard water resources into its General Plan and development project approval processes, it has taken a far-reaching step towards the preservation of local water resources for future generations.

36. Provision C.3 is written with the assumption that the Permittees are responsible for considering potential stormwater impacts when making planning and land use decisions. The goal of these requirements is to address pollutant discharges and changes in runoff flows from new development and significant redevelopment projects, through implementation of post-construction and treatment measures, source control, and site design measures, to the maximum extent practicable. Neither Provision C.3 nor any of its requirements are intended to restrict or control local land use decision-making authority.

37. For the purposes of this Order, the term "Redevelopment" is defined as a project on a previously developed site that results in the addition or replacement of impervious surface, and the term "brownfield site" means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

38. Opportunities to address stormwater pollution and hydrograph modification can be limited by current local design standards and guidance. For example, such standards and guidance may

[2] A discussion of imperviousness based on type of development and time of construction is provided in Heaney, J.B., Pitt, R, and Field, R. **Innovative Urban Wet-Weather Flow Management Systems**, 1999. USEPA Doc. No. EPA/600/R-99/029 (Chapter 2).

reduce or prohibit opportunities to minimize impervious surfaces, minimize directly connected impervious area, provide for small-scale detention, and implement other management measures. Revision of current standards and guidance can result in a significantly increased ability for project designers to minimize project impacts and can also enhance local property values, neighborhood character, and overall quality of life. Further, revision of standards and guidance can allow implementation of site design measures in projects to meet or help meet the numeric sizing criteria in Provision C.3.d and/or the hydrograph modification limitation in Provision C.3.f.

39. Certain control measures implemented or required by Permittees for urban runoff management may create a habitat for vectors (e.g., mosquitoes and rodents) if not properly designed or maintained. Close collaboration and cooperative effort among Permittees, local vector control agencies, Regional Board staff, and the State Department of Health Services is necessary to minimize potential nuisances and public health impacts resulting from vector breeding.

40. Provision C.3.f requires the Permittees to prepare a Hydrograph Modification Management Plan (HMP), for approval by the Regional Board, to manage impacts from changes to the volume and velocity of stormwater runoff from new development and significant redevelopment projects, where these changes can cause excessive erosion damage to downstream watercourses. Transit village type developments within ¼ to within ½ mile of transit stations and/or intermodal facilities, and projects within "Redevelopment Project Areas" (as defined by Health and Safety Code Section 33000, et seq.) that redevelop an existing brownfield site or create housing units affordable to persons of low or moderate income as defined by Health and Safety Code Section 50093, are excepted from the requirements of C.3.f and the HMP. Significant change in impervious surface or significant change in stormwater runoff volume or timing is unlikely in these redevelopment circumstances, because these developments would be within a largely already paved catchment, and on a site that is largely already paved or otherwise impervious.

    Similarly, as specified in Provision C.3.g.v, an exemption without the requirement for alternate, equivalent offsite treatment is allowed for the following redevelopment projects after impracticability of including onsite treatment measures is established, where such projects are built as redevelopment projects as defined in Finding 14, and it is clearly demonstrated that cost of participation in alternate, equivalent offsite treatment through a regional treatment or other equivalent water quality benefit project fund will unduly burden the project: creation of housing units affordable to persons of low or moderate income as defined by Health and Safety Code Section 50093, brownfield sites, and/or transit village type developments within 1/4 mile of transit stations and/or intermodal facilities. Not only is significant change in impervious surface or significant change in stormwater runoff volume or timing unlikely in these redevelopment circumstances, but these redevelopment projects are also likely to provide reduced water quality impacts and/or other environmental benefits in their own right.

41. The Regional Board recognized in its "Policy on the Use of Constructed Wetlands for Urban Runoff Pollution Control" (Resolution No. 94-102) that urban runoff treatment wetlands that are constructed and operated pursuant to that Resolution and are constructed outside of a creek or other receiving water, are stormwater treatment systems and, as such, are not waters of the United States subject to regulation pursuant to Sections 401 or 404 of the federal Clean Water Act. Regional Board staff is working with the California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS) to identify how maintenance for stormwater

treatment controls required under permits such as this Permit can be appropriately streamlined, given CDFG and USFWS requirements, and particularly those that address special status species. The Permittees are expected to work diligently and in good faith with the appropriate agencies to obtain any approvals necessary to complete maintenance activities for treatment controls. If the Permittees have done so, when necessary and where maintenance approvals are not granted, the Permittees shall be considered by the Regional Board to be in compliance with Provision C.3.e of this Order.

Finding in Support of Provision C.4: Public Information and Participation Performance Standards

42. The implementation of a public information and participation program is a critical component of a stormwater management program. An informed and knowledgeable community is critical to the success of a stormwater program because it helps ensure greater support for the program as the public gains a greater understanding for stormwater pollution issues. An informed community also ensures greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.

Finding in Support of Provision C.5: Performance Standards for Municipal Maintenance

43. Provision C.5 requires the Permittees to implement the municipal maintenance Performance Standards as set forth in the Management Plan, including, but not limited to, activities as described below. The work of municipal maintenance personnel is vital to minimize stormwater pollution, because personnel work directly on municipal storm drains and other municipal facilities (e.g., roads, parking lots, sidewalks, parks, landscaping, etc.). Through work such as inspecting and cleaning storm drain drop inlets and pipes and appropriately conducting municipal construction and maintenance activities upstream of the storm drain, municipal maintenance personnel are directly responsible for preventing and removing pollutants from the storm drain. Maintenance personnel also play an important role in educating the public and in reporting and cleaning up illicit discharges.

Finding in Support of Provision C.6: Performance Standard for Rural Public Works Maintenance and Support

44. Provision C.6 requires the Permittees to create an effective Best Manangement Practice (BMP) approach for the following rural public works maintenance and support activities: a) management and/or removal of large woody debris and live vegetation from stream channels; b) streambank stabilization projects; c) road construction, maintenance, and repairs in rural areas to prevent and control road-related erosion; and d) environmental permitting for rural public works activities. Road construction and other activities can disturb the soil and drainage patterns to streams in undeveloped areas, causing excess runoff and thereby erosion and the release of sediment. In particular, poorly designed roads can act as man-made drainages that carry water and sediment into natural streams, impacting water quality. In addition, other rural public works activities, including those the BMP approach would address, have the potential to significantly affect sediment discharge and transport within streams and other waterways, which can degrade the beneficial uses of those waterways. This Provision would help ensure these impacts are appropriately controlled.

Findings 45-46: Monitoring

45. Provision C.8 requires the annual and multi-year submittal and implementation of a Monitoring Program Plan, to include monitoring of receiving waters, in accordance with 40 CFR Parts 122.44(I) and 122.48. The purpose of the Monitoring Program Plan is to demonstrate the effectiveness of the Program's Management Plan and accordingly, demonstrate compliance with the conditions of the Permit. On April 15, 1992, the Regional Board adopted Resolution No. 92-043 directing the Executive Officer to implement the Regional Monitoring Program for San Francisco Bay. Subsequent to a public hearing and various meetings, Board staff requested major permit holders in the Region, under authority of Section 13267 of California Water Code, to report on the water quality of the Estuary. These permit holders, including the Permittees, responded to this request by participating in a collaborative effort through the San Francisco Estuary Institute. This effort has come to be known as the San Francisco Estuary Regional Monitoring Program for Trace Substances (RMP). The RMP involves collection and analysis of data on pollutants and toxicity in water, sediment and biota of the Estuary. The Permittees should continue to report on the water quality of the estuary, as presently required. Compliance with the requirement through participation in the RMP is considered to be adequate compliance. Alternatively, the Permittees may submit and implement an acceptable alternative monitoring plan. Annual reports from the RMP are referenced elsewhere in this Order.

46. The Regional Board has received the Program's draft Watershed Assessment and Monitoring Strategy for Fiscal Years 2002-2008, appended to this Order as Attachment B. The goal of this monitoring strategy is to support the development and implementation of the Management Plan and demonstrate its effectiveness along with showing the results of the Program's related monitoring work.

Finding in Support of Provision C.9

47. Provision C.9 requires identification of the non-prohibited types of discharges that the Permittees wish to exempt from Prohibition A. For conditionally exempted discharges which are pollutant sources, the Provision requires the Permittees to identify and incorporate into the Management Plan control measures to minimize the adverse impact of such sources. This Provision also establishes a mechanism to authorize under the Permit non-stormwater discharges owned or operated by the Permittees. The Program has developed a list of BMPs to eliminate adverse impacts of conditionally exempt discharges such as uncontaminated pumped groundwater, foundation drains, water from crawl spaces pumps, footing drains and planned and unplanned discharges from potable water sources, and water line and hydrant flushing.

Finding in Support of Provision C.10: Water Quality-Based Requirements for Specific Pollutants of Concern

48. This Provision requires the Permittees to implement programs to control pollutants that have the reasonable potential to cause or contribute to exceedances of water quality standards, including programs for copper, mercury, pesticides, polycholorinated biphenyls (PCBs) and dioxin-like compounds, and sediment, pursuant to the schedule provided in the Order. In addition, pursuant to Provision C.1 of this Order, if exceedances of water quality objectives persist notwithstanding implementation of Provisions C.2 through C.8 of this Order and the Plan, a Permittee shall report to the Regional Board on the control measures that are being implemented to reduce the amount of pollutants, and develop a plan to further address the pollutants that cause impairment over time. In response to prior Provision C.1 submissions, the Regional Board is including additional

requirements in Provision C.10 of this Order to continue implementation of previously delineated pollutant specific control measures and identification and implementation of additional control measures necessary to prevent or reduce discharges of pollutants that are causing or contributing to the exceedance of water quality standards.

Findings 49-50: Mercury

49. In 1998, the Regional Board met in a public hearing and adopted a CWA Section 303(d) list that classified all of San Francisco Bay as impaired due to mercury. The Permit requires Permittees to control mercury, which has been found by the Regional Board to have the reasonable potential to cause or contribute to exceedances of water quality standards, to the maximum extent practicable.

50. To reduce levels of mercury in stormwater discharges, the Permittees have begun to implement a Mercury Pollutant Reduction Plan (Mercury Plan).

Finding 51: Pesticides

51. The Program conducted pioneering studies starting in 1994, determining that diazinon from urban runoff was responsible for toxicity in urban creeks. The Permit requires the Permittees to address pesticides, which have been found by the Regional Board to have the reasonable potential to cause or contribute to exceedances of water quality standards. The Program has submitted a proactive Diazinon Pollutant Reduction Plan, hereafter referred to as the "Pesticide Plan." The goals of the Pesticide Plan and of its resulting implementing actions are to reduce or substitute pesticide use (especially diazinon use) with less toxic alternatives.

Findings 52-55: PCBs and Dioxins

52. US EPA lists PCBs as a potential carcinogen. In addition, PCBs are suspected of having negative impacts on the human immune system, reproductive system, nervous system, endocrine system, and digestive system. Although their manufacture is now banned in the United States, PCBs continue to pose a serious risk due to their persistence in the environment. PCBs accumulate in fatty tissue. This is important to human health in that several of the more common food fishes in the Bay (e.g., striped bass, white croaker) are marked by relatively high fat content. The California Office of Environmental Health and Hazard Assessment issued an interim fish consumption advisory for all of San Francisco Bay, partly based on PCB concentrations found in Bay fishes.

53. Urban runoff is highly likely to be a conveyance mechanism associated with the impairment of San Francisco Bay for PCBs.

54. The Permit requires Permittees to control PCBs, which have been found by the Regional Board to have the reasonable potential to cause or contribute to exceedances of water quality standards, to the maximum extent practicable. The Program has submitted a PCBs Pollutant Reduction Plan. This Plan includes surveys of stream sediments to assess concentrations and loadings of PCBs, assesses potential for ongoing discharges of PCBs, and develops a plan to reduce discharges of PCBs in runoff.

55. Dioxins are persistent, bioaccumulative, toxic compounds that are produced from the combustion of organic materials in the presence of chlorine. Dioxins enter the air through fuel and waste emissions, including diesel and other motor vehicle exhaust fumes and trash incineration, and are

carried in rain and contaminate soil. Dioxins bioaccumulate in fat and most human exposure occurs through the consumption of animal fats, including those from fish.

Findings 56-58: Implementation

56. It is the Regional Board's intent that this Order shall ensure attainment of applicable water quality objectives and protection of the beneficial uses of receiving waters and associated habitat. This Order therefore includes standard requirements to the effect that discharges shall not cause exceedances of water quality objectives nor shall they cause certain conditions to occur which create a condition of nuisance or water quality impairment in receiving waters. Accordingly, the Regional Board is requiring that these standard requirements be addressed through the implementation of technically and economically feasible control measures to reduce pollutants in stormwater discharges to the maximum extent practicable as provided in Provisions C.1 through C.10 of this Order. Compliance with the Discharge Prohibition, Receiving Water Limitations, and Provisions of this Order is deemed compliance with the requirements of this Order. If these measures, in combination with controls on other point and nonpoint sources of pollutants, do not result in attainment of applicable water quality objectives, the Regional Board may invoke Provision C.1 and may reopen this Permit pursuant to Provisions C.1 and C.13 of this Order to impose additional conditions which require implementation of additional control measures.

57. It is generally not considered feasible at this time to establish numeric effluent limitations for pollutants in municipal stormwater discharges. Instead, the provisions of this permit require implementation of BMPs to the maximum extent practicable to control and abate the discharge of pollutants in stormwater discharges.

58. The Program is organized, coordinated, and implemented based upon the "Agreement for Implementation of the Alameda County Urban Runoff Clean Water Program," now Alameda Countywide Clean Water Program, and referred to in this Order as the Program. The agreement is provided as Appendix A of the Management Plan. The roles and responsibilities of the Permittees are, in part, as follows:

    a. The Management Committee, which includes representatives from all of the Permittees, is the decision making body of the Program. It operates within the budget and policies established by the Permittees' governing boards and councils to decide matters of budget and policy necessary to implement the Management Plan, and provides direction to the Program Manager and staff. The Management Committee has established subcommittees to assist in planning and implementation of the Management Plan, and may add, modify, or delete such groups as deemed necessary.

    b. Each of the Permittees is individually responsible for adoption and enforcement of ordinances and policies, implementation of assigned control measures/ BMPs needed to prevent or reduce pollutants in stormwater, and for providing funds for the capital, operation, and maintenance expenditures necessary to implement such control measures/BMPs within its jurisdiction. Each Permittee is also responsible for its share of the costs of the area-wide component of the Program as specified in the Agreement. Except for area-wide components of the Program, enforcement actions concerning this Order will be pursued only against the individual Permittee(s) responsible for specific violations of this Order.

Findings 59-64: Public Process

59. Regional Board staff has worked in cooperation with the Program to develop a Tentative Order and the Performance Standards in the Management Plan. Regional Board staff conducted a series of meetings with the Stormwater Quality Management Plan (SWQMP) coordinating committee, a subgroup of the Program. These meetings included Regional Board staff and representatives of the Permittees. Through this process, the SWQMP coordinating committee attempted to identify, prioritize, and resolve issues related to the Permittees' and Program's performance, the Management Plan, and this Order, and attempted to develop a consensus concerning the requirements reflected herein.

60. The following is a brief summary of public meetings and comment periods on versions of the Permit's Tentative Order. Regional Board staff met with the SWQMP coordinating committee on February 22, March 22, April 26, and May 23, 2002. The administrative draft was released on June 6, 2002, and comments on the draft were received until June 27, 2002. Regional Board staff met with a workgroup consisting of representatives of the Permittees on July 17, July 25, August 5, and October 28, 2002, and with representatives of the Natural Resources Defense Council (NRDC) on July 18, 2002. The Permittees and Regional Board staff together conducted three outreach workshops on the portions of the Tentative Order addressing new development and redevelopment. Workshops were held on July 18, 2002, in Hayward; on July 25, 2002, in Oakland; and on July 29, 2002, in Pleasanton; and were attended by Permittee staff and other interested parties, including consultants and builders. Regional Board staff also met on dates including April 23, May 22, and October 30, 2002, with representatives of the Coastal Region Vector Control Agencies, including representatives of the Alameda County Mosquito Abatement District and the State Department of Health Services. On December 18, 2002, and January 22, 2003, the Regional Board heard testimony from the Dischargers and interested public on the Revised Tentative Order. On January 17 and 31, and February 7 and 14, 2003, Regional Board staff conducted public meetings on the Revised Tentative Order.

    The Tentative Order was released for public comments on August 21, 2002, by surface mail, electronic mails and posting on the Regional Board website. Comments on the Tentative Order were accepted until October 9, 2002. Based on comments received, appropriate changes were made and submitted to the Regional Board as a Revised Tentative Order for its consideration on December 18, 2002. From December 20, 2002, to January 10, 2003, the comment period was reopened by the Regional Board to allow additional submittals relative to projected cost of the amendment of Order No. 99-058 to both the Dischargers and the development community.

61. The Regional Board has notified the Permittees and interested agencies and interested persons of its intent to prescribe reissued waste discharge requirements and a reissued NPDES permit for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

62. The Regional Board, through public testimony in public meetings and in written form, has received and considered all comments pertaining to this Order.

63. The Regional Board will notify interested agencies and interested persons of the availability of reports, plans, and schedules, including Annual Reports, Work Plans, Performance Standards, and the Management Plan, and will provide interested persons with an opportunity for a public hearing and/or an opportunity to submit their written views and recommendations. The Regional

Board will consider all comments and may modify the reports, plans, or schedules or may modify this Order in accordance with applicable law. All submittals required by this Order conditioned with acceptance by the Regional Board will be subject to these notification, comment, and public hearing procedures.

64. This Order supercedes and rescinds Order Nos. 97-030 and 99-049.

65. This Order serves as a NPDES permit, pursuant to CWA Section 402, or amendments thereto, and shall become effective fifty days after the date of its adoption provided the Regional Administrator, US EPA, Region IX, has no objections.

IT IS HEREBY ORDERED that the Permittees, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder and the provisions of the Clean Water Act as amended and regulations and guidelines adopted hereunder, shall comply with the following:

A. DISCHARGE PROHIBITION

The Permittees shall, within their respective jurisdictions, effectively prohibit the discharge of non-stormwater (materials other than stormwater) into the storm drain systems and watercourses. NPDES permitted discharges are exempt from this prohibition. Compliance with this prohibition shall be demonstrated in accordance with Provision C.1 and C.9 of this Order. Provision C.9 describes a tiered categorization of non-stormwater discharges based on potential for pollutant content, which may be discharged upon adequate assurance that the discharge contains no pollutants of concern, at concentrations that will impact beneficial uses or cause exceedances of water quality standards.

B. RECEIVING WATER LIMITATIONS

1. The discharge shall not cause the following conditions to create a condition of nuisance or to adversely affect beneficial uses of waters of the State:

   a. Floating, suspended, or deposited macroscopic particulate matter, or foam;

   b. Bottom deposits or aquatic growths;

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin; and/or

   e. Substances present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption.

2. The discharge shall not cause or contribute to a violation of any applicable water quality standard for receiving waters. If applicable water quality objectives are adopted and approved by the State Board after the date of the adoption of this Order, the Regional Board may revise and modify this Order as appropriate.

C. PROVISIONS

1. Water Quality Standards Exceedances

The Permittees shall comply with Discharge Prohibition A and Receiving Water Limitations B.1 and B.2 through the timely implementation of control measures and other actions to reduce pollutants in the discharge in accordance with the Management Plan and other requirements of this permit,

including any modifications. The Management Plan shall be designed to achieve compliance with Receiving Water Limitations B.1 and B.2. If exceedance(s) of water quality standards or water quality objectives (collectively, WQSs) persist notwithstanding implementation of the Management Plan, a Permittee shall assure compliance with Discharge Prohibition A and Receiving Water Limitations B.1 and B.2 by complying with the following procedure:

a. Upon a determination by either the Permittee(s) or the Regional Board that discharges are causing or contributing to an exceedance of an applicable WQS, the Permittee(s) shall promptly notify and thereafter submit a report to the Regional Board that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of WQSs. The report may be incorporated in the annual update to the Management Plan unless the Regional Board directs an earlier submittal. The report shall include an implementation schedule. The Regional Board may require modifications to the report;

b. Submit any modifications to the report required by the Regional Board within 30 days of notification;

c. Within 30 days following approval of the report described above by the Regional Board, the Permittees shall revise the Management Plan and monitoring program to incorporate the approved modified control measures that have been and will be implemented, the implementation schedule, and any additional monitoring required; and,

d. Implement the approved revised Management Plan and monitoring program in accordance with the approved schedule.

As long as Permittees have complied with the procedures set forth above and are implementing the revised Management Plan, they do not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Regional Board to develop additional control measures and BMPs.

2. Stormwater Quality Management Plan and Performance Standards

a. The Permittees shall implement control measures/BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable. The Management Plan shall serve as the framework for identification, assignment, and implementation of practices of such control measures/BMPs. The Management Plan contains Performance Standards that address the following Program components: Public Information and Participation, Municipal Maintenance, New Development and Significant Redevelopment, Construction Site Controls, Illicit Discharge Controls, and Industrial and Commercial Discharge Controls. Performance Standards are defined as the level of implementation necessary to demonstrate the control of pollutants in stormwater to the maximum extent practicable. The Permittees shall implement the Management Plan, and shall subsequently demonstrate its effectiveness and provide for necessary and appropriate revisions, modifications, and improvements to reduce pollutants in stormwater discharges to the maximum extent practicable and as required by Provisions C.1 through C.11 of this Order.

b. The Management Plan shall be revised to adopt and incorporate any new Performance Standards developed by the Permittees or any revised Performance Standard identified by the Permittees through the Program's process for evaluating and improving its effectiveness or other means described in Provision C.1. Performance Standards shall be developed or revised through a

process which includes 1) opportunities for public participation, 2) appropriate external technical input and criteria for the applicability, economic feasibility, design, operation, and maintenance, and 3) measures for evaluation of effectiveness so as to achieve pollutant reduction or pollution prevention benefits to the maximum extent practicable. New or revised Performance Standards may be based upon special studies or other activities conducted by the Permittees, literature review, or special studies conducted by other programs or Permittees. New or revised Performance Standards shall include the baseline components to be accomplished and the method to be used to verify that the Performance Standard has been achieved. The Permittees shall incorporate newly developed or updated Performance Standards, acceptable to the Executive Officer, into applicable annual revisions to the Management Plan and adhere to implementation of the new/revised Performance Standard(s). In addition to the annual Management Plan revisions, the Permittees shall submit a compilation of all annual Management Plan revisions by three years after Board adoption of this Order, which shall serve in part as the re-application package for the next Permit. The draft Annual Workplan required in Provision C.6 shall identify Performance Standards that will be developed or revised for the upcoming fiscal year. Following the addition/revision of a Performance Standard, acceptable to the Executive Officer, the Permittees for which the Performance Standard is applicable shall adhere to its implementation.

3. New Development and Redevelopment Performance Standards

The Permittees will continue to implement the new development and redevelopment Performance Standards contained in the Management Plan and improve them to achieve the control of stormwater pollutants to the maximum extent practicable in accordance with the following sections:

a. Performance Standard Implementation

The Dischargers shall continue to implement and improve, as necessary and appropriate, the performance standards for new development and redevelopment controls detailed on Pages B-ND-1 through B-ND-6 of the July 1996 Management Plan.

b. Development Project Approval Process

The Permittees shall modify their project review processes as needed to incorporate the requirements of Provision C.3. Each Permittee shall include conditions of approval in permits for applicable projects, as defined in Provision C.3.c, to ensure that stormwater pollutant discharges are reduced by incorporation of treatment measures and other appropriate source control and site design measures, and increases in runoff flows are managed in accordance with Provision C.3.f, to the maximum extent practicable. Such conditions shall, at a minimum, address the following goals:

i. Require a project proponent to implement site design/landscape characteristics where feasible which maximize infiltration (where appropriate), provide retention or detention, slow runoff, and minimize impervious land coverage, so that post-development pollutant loads from a site have been reduced to the maximum extent practicable; and

ii. For new and redevelopment projects that discharge directly (not mixed with runoff from other developed sites) to water bodies listed as impaired by a pollutant(s) pursuant to CWA Section 303(d), ensure that post project runoff does not exceed pre-project levels for such pollutant(s), through implementation of the control measures addressed in this provision, to the maximum extent practicable, in conformance with Provision C.1.

Modification of project review processes shall be completed by February 15, 2005.

c. Applicable Projects – New and Redevelopment Project Categories

New development and significant redevelopment projects that are subject to Provision C.3 are grouped into two categories based on project size. While all projects regardless of size should consider incorporating appropriate source control and site design measures that minimize stormwater pollutant discharges to the maximum extent practicable, new and redevelopment projects that do not fall into Group 1 or Group 2 are not subject to the requirements of Provision C.3. Provision C.3 shall also not apply to projects for which a privately-sponsored development application has been deemed complete by a Permittee or, with respect to public projects, for which funding has been committed and for which construction is scheduled by February 15, 2005.

i. Group 1 Projects

Permittees shall require Group 1 Projects to implement appropriate source control and site design measures and to design and implement stormwater treatment measures, to reduce the discharge of stormwater pollutants to the maximum extent practicable. Implementation of this requirement shall begin February 15, 2005. Group 1 Projects consist of all public and private projects in the following categories:

1. Commercial, industrial, or residential developments that create one acre (43,560 square feet) or more of impervious surface, including roof area, streets and sidewalks. This category includes any development of any type on public or private land, which falls under the planning and building authority of the Permittees, where one acre or more of new impervious surface, collectively over the entire project site, will be created.

   Construction of one single-family home, which is not part of a larger common plan of development, with the incorporation of appropriate pollutant source control and design measures, and using landscaping to appropriately treat runoff from roof and house-associated impervious surfaces (e.g., runoff from roofs, patios, driveways, sidewalks, and similar surfaces), would be in substantial compliance with Provision C.3.

2. Streets, roads, highways, and freeways that are under the Permittees' jurisdiction and that create one acre (43,560 square feet) or more of new impervious surface. This category includes any newly constructed paved surface used primarily for the transportation of automobiles, trucks, motorcycles, and other motorized vehicles. Excluded from this category are sidewalks, bicycle lanes, trails, bridge accessories, guardrails, and landscape features.

3. Significant Redevelopment projects. This category is defined as a project on a previously developed site that results in addition or replacement, which combined total 43,560 sq ft or more of impervious surface on such an already developed site ("Significant Redevelopment"). Where a Significant Redevelopment project results in an increase of, or replacement of, more than fifty percent of the impervious surface of a previously existing development, and the existing development was not subject to stormwater treatment measures, the entire project must be included in the treatment measure design. Conversely, where a Significant Redevelopment project results in an increase of, or replacement of, less than fifty percent of the impervious surface of a previously existing development, and the existing development was not subject to stormwater treatment

measures, only that affected portion must be included in treatment measure design. Excluded from this category are interior remodels and routine maintenance or repair. Excluded routine maintenance and repair includes roof or exterior surface replacement, pavement resurfacing, repaving and road pavement structural section rehabilitation, within the existing footprint, and any other reconstruction work within a public street or road right-of-way where both sides of that right-of-way are developed.

ii. Group 2 Projects

The Group 2 Project definition is in all ways the same as the Group 1 Project definition above, except that the size threshold of impervious area for new and Significant Redevelopment projects is reduced from one acre (43,560 sq ft) of impervious surface to 10,000 square feet. Permittees shall require Group 2 Projects to implement appropriate source control and site design measures and to design and implement appropriate stormwater treatment measures to reduce stormwater pollution to the maximum extent practicable. Projects consisting of one single family home not part of a larger common plan of development are excluded from the Group 2 Project definition, and therefore excluded from the requirement to implement appropriate stormwater treatment measures. Implementation of this requirement shall begin by August 15, 2006, at which time the definition of Group 1 Projects is changed to include all Group 2 Projects.

iii. Proposal for Alternative Group 2 Project Definition

The Program and/or any Permittee may propose, for approval by the Regional Board, an Alternative Group 2 Project definition, with the goal that any such alternative definition aim to ensure that the maximum created impervious surface area is treated for the minimum number of projects subject to Permittee review. Any such proposal shall contain supporting information about the Permittees' development patterns, and sizes and numbers of proposed projects for several years, that demonstrates that the proposed definition would be substantially as effective as the Group 2 Project definition in Provision C.3.c.ii. Proposals may include differentiating projects subject to the Alternative Group 2 Project definition by land use, by focusing solely on the techniques recommended by Start at the Source for documented low pollutant loading land uses, and/or by optimum use of landscape areas required by Permittees under existing codes as treatment measures. Proposals may be submitted anytime, with the understanding that the Group 2 Project definition, as described in Provision C.3.c.ii will be upheld as the default in the absence of an approved Alternative Group 2 Project definition.

d. Numeric Sizing Criteria For Pollutant Removal Treatment Systems

All Permittees shall require that treatment measures be constructed for applicable projects, as defined in Provision C.3.c, that incorporate, at a minimum, the following hydraulic sizing design criteria to treat stormwater runoff. As appropriate for each criterion, the Permittees shall use or appropriately analyze local rainfall data to be used for that criterion.

i. Volume Hydraulic Design Basis

Treatment measures whose primary mode of action depends on volume capacity, such as detention/retention units or infiltration structures, shall be designed to treat stormwater runoff equal to:

1. The maximized stormwater quality capture volume for the area, based on historical rainfall records, determined using the formula and volume capture coefficients set forth in

Urban Runoff Quality Management, WEF Manual of Practice No. 23/ ASCE Manual of Practice No. 87, (1998), pages 175-178 (e.g., approximately the 85th percentile 24-hour storm runoff event); or

2. The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology set forth in Appendix D of the California Stormwater Best Management Practices Handbook (1993), using local rainfall data.

ii. Flow Hydraulic Design Basis

Treatment measures whose primary mode of action depends on flow capacity, such as swales, sand filters, or wetlands, shall be sized to treat:

1. 10% of the 50-year peak flow rate; or
2. The flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths; or
3. The flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity.

e. Operation and Maintenance of Treatment Measures

All treatment measures shall be adequately operated and maintained by complying with the process described below. Beginning July 1, 2004, each Permittee shall implement a treatment measures operation and maintenance (O&M) verification program (O&M Program), which shall include the following:

i. Compilation of a list of properties (public and private) and responsible operators for, at a minimum, all treatment measures implemented from the date of adoption of this Order. Information on the location of all stormwater treatment measures shall be sent to the Alameda County Mosquito Abatement District. In addition, the Permittees shall inspect a subset of prioritized treatment measures for appropriate O&M, on an annual basis, with appropriate follow-up and correction.

ii. Verification and access assurance at a minimum shall include: where a private entity is responsible for O&M, the entity's signed statement accepting responsibility for maintenance until the responsibility is legally transferred to another entity, and access permission to the extent allowable by law for representatives of the Permittee, local vector control district, and Regional Board staff strictly for the purpose of O&M verification for the specific stormwater treatment system to the extent allowable by law; and, for all entities, either:

1. A signed statement from the public entity assuming post-construction responsibility for treatment measure maintenance and that the treatment measures meet all local agency design standards; or
2. Written conditions in the sales or lease agreement requiring the buyer or lessee to assume responsibility for O&M consistent with this provision, which conditions, in the case of purchase and sale agreements, shall be written to survive beyond the close of escrow; or
3. Written text in project conditions, covenants and restrictions (CCRs) for residential properties assigning O&M responsibilities to the home owners association for O&M of the treatment measures; or

4. Any other legally enforceable agreement or mechanism that assigns responsibility for the maintenance of treatment measures.

iii. O&M Reporting: the Permittees shall report on their O&M Program in each Annual Report, starting with the Annual Report to be submitted September 2005. The Annual Report shall contain a description of the organizational structure of the Permittee's O&M Program; an evaluation of that O&M Program's effectiveness; summary of any planned improvements in O&M Program; and a list or summary of treatment measures that have been inspected that year with inspection results.

iv. The Program shall submit by June 1, 2004, a vector control plan for Executive Officer approval, after consultation with the appropriate vector control agencies. The plan shall include design guidance for treatment measures to prevent the production of vectors, particularly mosquitoes, and provide guidance on including vector abatement concerns in O&M and verification inspection activities.

v. The Permittees are expected to work diligently and in good faith with the appropriate state and federal agencies to obtain any approvals necessary to complete maintenance activities for stormwater treatment measures. If the Permittees have done so, and maintenance approvals are not granted, where necessary, the Permittees shall be deemed by the Regional Board to be in compliance with this Provision.

f. Limitation on Increase of Peak Stormwater Runoff Discharge Rates

i. The Permittees shall manage increases in peak runoff flow and increased runoff volume, for all Group 1 Projects where such increased flow and/or volume is likely to cause increased erosion of creek beds and banks, silt pollutant generation, or other impacts to beneficial uses. Such management shall be through implementation of a Hydrograph Modification Management Plan (HMP). The HMP, once approved by the Regional Board, shall be implemented so that post-project runoff shall not exceed estimated pre-project rates and/or durations, where the increased stormwater discharge rates and/or durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses, attributable to changes in the amount and timing of runoff. The term duration in this Provision is defined as the period that flows are above a threshold that causes significant sediment transport and may cause excessive erosion damage to creeks and streams.

ii. Provision C.3.f.i does not apply to new development and significant redevelopment projects where the project discharges stormwater runoff into creeks or storm drains where the potential for erosion or other impacts to beneficial uses, is minimal. Such situations may include discharges into creeks that are concrete-lined or significantly hardened (e.g., with rip-rap, sackrete, etc.) downstream to their outfall in San Francisco Bay, underground storm drains discharging to the Bay, and construction of infill projects in highly developed watersheds, where the potential for single-project and/or cumulative impacts is minimal. Guidelines for identification of such situations shall be included as a part of the HMP. However, plans to restore a creek reach may re-introduce the applicability of HMP controls, and would need to be addressed in the HMP.

iii. The HMP may identify conditions under which some increases in runoff may not have a potential for increased erosion or other impacts to beneficial uses. Reduced controls or no controls on peak stormwater runoff discharge rates and/or durations may be appropriate in

those cases, subject to the conditions in the HMP. In the absence of information demonstrating that changes in post-development runoff discharge rates and durations will not result in increased potential for erosion or other adverse impacts to beneficial uses, the HMP requirements shall apply.

iv. The HMP proposal, at a minimum, shall include:

1. A review of pertinent literature;
2. A protocol to evaluate potential hydrograph change impacts to downstream watercourses from proposed projects;
3. An identification of the rainfall event below which these standards and management requirements apply, or range of rainfall events to which these requirements apply;
4. A description of how the Permittees will incorporate these requirements into their local approval processes, or the equivalent; and,
5. Guidance on management practices and measures to address identified impacts.

The Permittees may prioritize which individual watersheds the HMP would initially apply to, if it were demonstrated in the HMP that such prioritization is appropriate.

The Permittees may work appropriately with the Santa Clara Valley Urban Runoff Pollution Prevention Program and/or other Bay Area stormwater programs as part of completing these requirements. For example, the Permittees may wish to expand on the literature review being completed by the Santa Clara Valley Urban Runoff Program under its permit, rather than authoring their own literature review from scratch. While such cooperation is encouraged, it shall not be grounds for delaying compliance beyond the schedule set forth herein.

v. The identified maximum rainfall event or rainfall event range may be different for specific watersheds, streams, or stream reaches. Individual Permittees may utilize the protocol to determine a site- or area-specific rainfall event or event range standard.

vi. The HMP's evaluation protocols, management measures, and other information may include the following:

1. Evaluation of the cumulative impacts of urbanization of a watershed on stormwater discharge and stream morphology in the watershed;
2. Evaluation of stream form and condition, including slope, discharge, vegetation, underlying geology, and other information, as appropriate;
3. Implementation of measures to minimize impervious surfaces and directly connected impervious area in new development and redevelopment projects;
4. Implementation of measures including stormwater detention, retention, and infiltration;
5. Implementation of land use planning measures (e.g., stream buffers and stream restoration activities, including restoration-in-advance of floodplains so that floodplains will be able to handle the anticipated increased flows, revegetation, use of less-impacting facilities at the point(s) of discharge, etc.) to allow expected changes in stream channel cross sections, stream vegetation, and discharge rates, velocities, and/or durations without adverse impacts to stream beneficial uses;
6. A mechanism for pre- vs. post-project assessment to determine the effectiveness of the HMP and to allow amendment of the HMP, as appropriate; and,
7. Other measures, as appropriate.

vii. **Equivalent limitation of peak flow impacts:** The Permittees may develop an equivalent limitation protocol, as part of the HMP, to address impacts from changes in the volumes, velocities, and/or durations of peak flows through measures other than control of those volumes and/or durations. The protocol may allow increases in peak flow and/or durations, subject to the implementation of specified design, source control, and/or treatment control measures and land planning practices that take into account expected stream change (e.g., increases in the cross-sectional area of stream channel) resulting from changes in discharge rates and/or durations, while maintaining or improving beneficial uses of waters.

viii. The Permittees as a group shall complete the HMP according to the schedule below. All required documents shall be submitted for approval by the Executive Officer, based on the criteria set forth in this Order, except the HMP, which shall be submitted for approval by the Regional Board. Development and implementation status shall be reported in the Permittees' Annual Reports, which shall also provide a summary of projects incorporating measures to address this Provision and the measures used.

1. February 15, 2004: Submit a detailed workplan and schedule for completion of the literature review, development of a protocol to identify an appropriate limiting storm, development of guidance materials, and other required information;
2. February 15, 2004: Submit literature review;
3. November 15, 2004: Submit a draft HMP, including the analysis that identifies the appropriate limiting storm and the identified limiting storm event(s) or event range(s);
4. May 15, 2005: Submit the HMP for Regional Board approval; and,
5. Upon approval by the Regional Board, implement the approved HMP, which shall include the requirements of this Provision. Prior to approval of the HMP by the Regional Board, the early implementation of measures likely to be included in the HMP shall be encouraged by the Permittees.

g. Alternative Compliance Based on Impracticability and Requiring Compensatory Mitigation

i. The Permittees may establish a program under which a project proponent may request alternative compliance with the requirement in Provision C.3.c. to install treatment measures onsite for a given project, upon an appropriate showing of impracticability, and with a provision to treat offsite an equivalent surface area, pollutant loading or quantity of stormwater runoff, or provide other equivalent water quality benefit, such as stream restoration or other activities that limit or mitigate impacts from excessive erosion or sedimentation. The offsite location of this equivalent stormwater treatment, or water quality benefit, shall be where no other requirement in Provision C.3.c for treatment exists, and within the same stormwater runoff drainage basin and treating runoff discharging to the same receiving water, where feasible. Under this Provision, enhancements of existing mitigation projects are acceptable. The Permittees should specifically define the basis for impracticability or infeasibility, which may include situations where onsite treatment is technically feasible, but excessively costly, as determined by set criteria.

ii. **Regional Solutions**: The alternative compliance may allow a project proponent to participate in a regional or watershed-based stormwater treatment facility, without a showing

of impracticability at the individual project site, if the regional or watershed- based stormwater treatment facility discharges into the same receiving water, where feasible.

iii. The Program is encouraged to propose a model alternative compliance program on behalf of the Permittees, for approval by the Regional Board, and for potential adoption and implementation by the Permittees.

iv. The alternative compliance program proposal should state the criteria for granting alternatives from the requirement to install treatment measures onsite; criteria for determining impracticability or infeasibility; and criteria for use of regional or watershed-based stormwater treatment facilities. The proposal should also describe how the project sponsor will provide equivalent water quality benefits or credit to an alternative project or to a regional or watershed treatment facility and tracking mechanisms to support the reporting requirements set forth in Provision C.3.g.vi below.

v. An exemption without the requirement for alternate, equivalent offsite treatment is allowed for the following redevelopment projects after impracticability of including onsite treatment measures is established, where such projects are built as redevelopment projects as defined in Finding 14, and it is clearly demonstrated that cost of participation in alternate, equivalent offsite treatment through a regional treatment or other equivalent water quality benefit project fund will unduly burden the project: creation of housing units affordable to persons of low or moderate income as defined by Health and Safety Code Section 50093, brownfield sites, and/or transit village type developments within 1/4 mile of transit stations and/or intermodal facilities.

vi. Reporting: Each year, as part of its Annual Report, each Permittee shall provide a list of alternative projects and exemptions it granted. For each project and exemption, the following information shall be provided:

1. Name and location of the project for which the alternative project or exemption was granted;
2. Project type (e.g., restaurant, residence, shopping center) and size;
3. Area or percent of impervious surface in the project's final design;
4. Reason for granting the alternative project or exemption, including, for those projects granted an exemption without the requirement for alternate, equivalent offsite treatment, a demonstration that cost of such equivalent offsite treatment unduly burdened the project;
5. Terms of the alternative project or exemption; and,
6. The offsite stormwater treatment project receiving the benefit, and the date of completion of the project.

vii. Interim Alternative Compliance Program: In the event that an alternative compliance program has not been proposed by the Program and/or a Permittee, approved by the Regional Board, or implemented by a particular Permittee by the date of implementation of Group 1 Projects, provision for an interim alternative to the requirement to install treatment measures onsite may be granted by a Permittee. An interim alternative compliance project may be granted if the project proponent (1) demonstrates onsite impracticability due to extreme limitations of space for treatment and lack of below grade surface treatment options, and (2) presents sufficient assurance of providing equivalent offsite stormwater pollutant and/or volume treatment at another location within the drainage basin, for which construction of stormwater treatment measures is not otherwise required, discharging into the same receiving

water, where feasible. The Permittee shall be responsible for assuring that equivalent offsite treatment has occurred for any use of this interim alternative compliance, within six months of project construction, and shall report the basis of onsite impracticability and the nature of equivalent offsite treatment for each project in its Annual Report. Any equivalent offsite treatment that does not include construction of stormwater treatment measures must be approved by the Executive Officer, based on the criteria set forth in this Order. This interim alternative compliance clause will be void when Regional Board approves the alternative compliance program described in Provision C3.g.i-iv, above.

h. Alternative Certification of Adherence to Design Criteria for Stormwater Treatment Measures

In lieu of conducting detailed review to verify the adequacy of measures required pursuant to Provisions C.3.d, a Permittee may elect to accept a signed certification from a Civil Engineer or a Licensed Architect or Landscape Architect registered in the State of California, or another Permittee that has overlapping jurisdictional project permitting authority, that the plan meets the criteria established herein. The Permittee should verify that each certifying person has been trained on treatment measure design for water quality not more than three years prior to the signature date, and that each certifying person understands the groundwater protection principles applicable to the project site (see Provision C.3.i: Limitations on Use of Infiltration Treatment Measures). Training conducted by an organization with stormwater treatment measure design expertise (e.g., a university, American Society of Civil Engineers, American Society of Landscape Architects, American Public Works Association, or the California Water Environment Association) may be considered qualifying.

i. Limitations on Use of Infiltration Treatment Measures - Infiltration and Groundwater Protection

In order to protect groundwater from pollutants that may be present in urban runoff, treatment measures that function primarily as infiltration devices (such as infiltration basins and infiltration trenches not deeper than their maximum width) shall meet, at a minimum, the following conditions:

i. Pollution prevention and source control measures shall be implemented at a level appropriate to protect groundwater quality at sites where infiltration devices are to be used;

ii. Use of infiltration devices shall not cause or contribute to degradation of groundwater water quality objectives;

iii. Infiltration devices shall be adequately maintained to maximize pollutant removal capabilities;

iv. The vertical distance from the base of any infiltration device to the seasonal high groundwater mark shall be at least 10 feet. Note that some locations within the Permittees' jurisdiction are characterized by highly porous soils and/or a high groundwater table; in these areas treatment measure approvals should be subject to a higher level of analysis (e.g., considering the potential for pollutants such as on-site chemical use, the level of pretreatment to be achieved, and similar factors);

v. Unless stormwater is first treated by a means other than infiltration, infiltration devices shall not be recommended as treatment measures for areas of industrial or light industrial activity; areas subject to high vehicular traffic (25,000 or greater average daily traffic on main

roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage areas (bus, truck, etc.); nurseries; and other high threat to water quality land uses and activities as designated by each Permittee; and,

vi. Infiltration devices shall be located a minimum of 100 feet horizontally from any water supply wells.

j. Site Design Measures Guidance and Standards Development

i. The Permittees shall review their local design standards and guidance for opportunities to make revisions that would result in reduced impacts to water quality and beneficial uses of waters. In this event, the Permittees shall make any such revisions and implement the updated standards and guidance, as necessary.

Areas of site design that may be appropriate to address include the following, which are offered as examples:

1. Minimize land disturbance;
2. Minimize impervious surfaces (e.g., roadway width, driveway area, and parking lot area), especially directly connected impervious areas;
3. Minimum-impact street design standards for new development and redevelopment, including typical specifications (e.g., neo-traditional street design standards and/or street standards recently revised in other cities, including Portland, Oregon, and Vancouver, British Columbia);
4. Minimum-impact parking lot design standards, including parking space maximization within a given area, use of landscaping as a stormwater drainage feature, use of pervious pavements, and parking maxima;
5. Clustering of structures and pavement;
6. Typical specifications or "acceptable design" guidelines for lot-level design measures, including:
   - Disconnected roof downspouts to splash blocks or "bubble-ups;"
   - Alternate driveway standards (e.g., wheelways, unit pavers, or other pervious pavements); and,
   - Microdetention, including landscape detention and use of cisterns (may also be considered treatment measures);
7. Preservation of high-quality open space;
8. Maintenance and/or restoration of riparian areas and wetlands as project amenities, including establishing vegetated buffer zones to reduce runoff into waterways, allow for stream channel change as a stream's contributing watershed urbanizes, and otherwise mitigate the effects of urban runoff on waters and beneficial uses of waters (may also be considered treatment measures); and,
9. Incorporation of supplemental controls to minimize changes in the volume, flow rate, timing, and duration of runoff, for a given precipitation event or events. These changes include cumulative hydromodification caused by site development. Measures may include landscape-based measures or other features to reduce the velocity of, detain, and/or infiltrate stormwater runoff (may also be considered treatment measures).

ii. The standards and guidance review shall be completed according to the schedule below. A summary of review, revision, and implementation status shall be submitted for acceptance by the Executive Officer and reported in the Permittees' Annual Reports, beginning with the Annual Report due September 15, 2005.

1. No later than August 15, 2003: The Permittees shall submit a detailed workplan and schedule for completion of the review of standards and guidelines, any proposed revisions thereto and any implementation of revised standards and guidance;
2. No later than November 15, 2004: The Permittees shall submit a draft review and analysis of local standards and guidance, opportunities for revision, and any proposed revised standards and guidance; and,
3. No later than November 15, 2005: The Permittees shall incorporate any revised standards and guidance into their local approval processes and shall fully implement the revised standards and guidance.

k. Source Control Measures Guidance Development

The Permittees shall, as part of their improvement process, submit enhanced new development and significant redevelopment Performance Standards, which summarize source control requirements for such projects to limit pollutant generation, discharge, and runoff, to the maximum extent practicable. Examples of source control measures may include the following, which are offered as examples:

i. Indoor mat/equipment wash racks for restaurants, or covered outdoor wash racks plumbed to the sanitary sewer;

ii. Covered trash and food compactor enclosures with a sanitary sewer connection for dumpster drips and designed such that run-on to trash enclosure areas is avoided;

iii. Sanitary sewer drains for swimming pools;

iv. Sanitary drained outdoor covered wash areas for vehicles, equipment, and accessories;

v. Sanitary sewer drain connections to take fire sprinkler test water;

vi. Storm drain system stenciling;

vii. Landscaping that minimizes irrigation and runoff, promotes surface infiltration where appropriate, minimizes the use of pesticides and fertilizers, and where feasible removes pollutants from stormwater runoff; and,

viii. Appropriate covers, drains, and storage precautions for outdoor material storage areas, loading docks, repair/maintenance bays, and fueling areas.

A model enhanced new development and significant redevelopment source control Performance Standard and proposed workplan for its implementation shall be submitted by August 15, 2004. Implementation shall begin no later than February 15, 2005, and the status shall thereafter be reported in the Permittees' Annual Reports beginning with the Annual Report due September 15, 2005, which shall also provide appropriate detail on projects reflecting the application of the enhanced Performance Standards consistent with Provision C.3.b, above.

l. Update General Plans

At the next scheduled update/revision of its General Plan, each Permittee shall confirm that it has incorporated water quality and watershed protection principles and policies into its General Plan or equivalent plan, to the extent necessary, to require implementation of the measures required by Provision C.3 for applicable development projects. These principles and policies shall be designed to protect natural water bodies, reduce impervious land coverage, slow runoff, and where feasible, maximize opportunities for infiltration of rainwater into soil. Such water quality and watershed protection principles and policies may include the following, which are offered as examples:

i. Minimize the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment and where feasible maximize on-site infiltration of runoff;

ii. Implement pollution prevention methods supplemented by pollutant source controls and treatment. Use small collection strategies located at, or as close as possible to, the source (i.e., the point where water initially meets the ground) to minimize the transport of urban runoff and pollutants offsite and into a municipal separate storm sewer system;

iii. Preserve, and where possible, create or restore areas that provide important water quality benefits, such as riparian corridors, wetlands, and buffer zones. Encourage land acquisition and/or conservation easement acquisition of such areas;

iv. Limit disturbances of natural water bodies and natural drainage systems caused by development including roads, highways, and bridges;

v. Prior to making land use decisions, utilize methods available to estimate increases in pollutant loads and flows resulting from projected future development. Require incorporation of structural and non-structural treatment measures to mitigate the projected increases in pollutant loads and flows;

vi. Avoid development of areas that are particularly susceptible to erosion and sediment loss; or establish development guidance that identifies these areas and protects them from erosion and sediment loss; and,

vii. Reduce pollutants associated with vehicles and increased traffic resulting from development.

If amendments of General Plans are determined to be legally necessary to allow for implementation of any aspect of Provision C.3, such amendments shall occur by the implementation date of the corresponding component of the Provision. If legally necessary General Plan amendments cannot occur by the implementation date because of CEQA requirements or other constraints imposed by the laws applicable to amending General Plans, the Permittee shall report this to the Executive Officer as soon as possible, and no later than in the Annual Report due more than six months in advance of the implementation date. Should changes to implementation dates to enable a Permittee to comply with CEQA and General Plan legal requirements be necessary, the Permittee shall recommend a new implementation date for approval by the Regional Board.

m. Water Quality Review Processes

When Permittees conduct environmental review of projects in their jurisdictions, the Permittees shall evaluate water quality effects and identify appropriate mitigation measures. This

requirement shall be implemented by May 15, 2004. Questions that evaluate increased pollutants and flows from the proposed project include the following, which are offered as examples:

i. Would the proposed project result in an increase in pollutant discharges to receiving waters? Consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical stormwater pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash).

ii. Would the proposed project result in significant alteration of receiving water quality during or following construction?

iii. Would the proposed project result in increased impervious surfaces and associated increased runoff?

iv. Would the proposed project create a significant adverse environmental impact to drainage patterns due to changes in runoff flow rates or volumes?

v. Would the proposed project result in increased erosion in its watershed?

vi. Is the project tributary to an already impaired water body, as listed on the CWA Section 303(d)? If so, will it result in an increase in any pollutant for which the water body is already impaired?

vii. Would the proposed project have a potentially significant environmental impact on surface water quality, to marine, fresh, or wetland waters?

viii. Would the proposed project have a potentially significant adverse impact on groundwater quality?

ix. Will the proposed project cause or contribute to an exceedance of applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses?

x. Will the project impact aquatic, wetland, or riparian habitat?

n. Reporting, including Pesticide Reduction Measures

The Permittees shall demonstrate compliance with the requirements of Provision C.3 by providing in their Annual Reports the information described in Table 1, beginning with the dates shown in Table 1 and continuing thereafter. In addition, the following information shall be collected for Annual Report submittal, beginning upon the date of adoption of this Order:

i. For all new development and significant redevelopment projects which meet the Group 1 or Group 2 definitions in Provision C.3.c, collect and report the name or other identifier, type of project (using the categories in Provision C.3.c), site acreage or square footage, and square footage of new impervious surface.

ii. For projects that must implement treatment measures, report which treatment measures were used and numeric-sizing criteria employed, the O&M responsibility mechanism including responsible party, site design measures used, and source control measures required. This information shall also be reported to the appropriate local vector control district, with additional information of access provisions for vector control district staff. This reporting shall begin in the Annual Report following the implementation date specified in Provision C.3.c.

iii. A summary of the types of pesticide reduction measures required for those new development and significant redevelopment projects to be addressed under Provision C.3.c, and the percentage of such new development and significant redevelopment projects for which pesticide reduction measures were included. These measures are required under Provision C.10.c, and relate directly to Provision C.3 requirements.

The Permittees may utilize their Annual Reports to highlight their budget constraints and suggest reprioritization of any Program activities in order to achieve the most cost effective overall Program.

o. Implementation Schedule

The Permittees shall implement the requirements of Provisions C.3.b through C.3.n according to the schedule in Table 2.

4. Public Information and Participation Performance Standards

The Program shall develop a specific workplan with the Permittees based on Section 3. Task 5 of the PIP component of the Management Plan to evaluate the effectiveness of the PIP component and report on this on-going evaluation starting September 2004 for the 2003-2004 Annual Report, and annually thereafter. Effectiveness may be measured through direct or indirect means, such as observation of behavior; surveys; and/or analysis of available data on public involvement in or in response to PIP activities.

5. Performance Standards for Municipal Maintenance

The Program shall implement municipal maintenance performance standards as set forth in the Management Plan.

6. Performance Standard for Rural Public Works Maintenance and Support

For the purpose of this provision, rural means any watershed or portion thereof that remains undeveloped or with primarily agricultural, grazing or open space uses, and drains to unchannelized streams. The Program shall develop, within one year after the adoption of this Order, Performance Standards, appropriate training and technical assistance requirements, and annual reporting requirements for the following rural public works maintenance and support activities: a) management and/or removal of large woody debris and live vegetation from stream channels; b) streambank stabilization projects; and, c) road construction, maintenance, and repairs in rural areas to prevent and control road-related erosion. In addition, Permittees shall develop: d) education and guidance on permitting requirements for rural public works activities so as to stress the importance of proper planning and construction.

7. Annual Reports and Workplans

a. Annual Reports

The Permittees shall submit an Annual Report to the Regional Board by September 15 of each year, documenting the status of the Program's and the Permittees' activities during the previous fiscal year, including the results of a qualitative assessment of activities implemented by the Permittees, and the performance of tasks contained in the Management Plan.

The Annual Report shall include a compilation of deliverables and milestones completed during the previous twelve-month period, as described in the Management Plan. In either the Annual Reports or the Workplans, the Permittees shall propose pertinent updates, improvements, or

revisions to the Management Plan, which shall be complied with under this Order unless disapproved by the Executive Officer or acted upon in accordance with Provision C.12. As part of the Annual Report process, each Permittee shall evaluate the effectiveness of the activities completed during the reporting period.

Direct and indirect measures of effectiveness may include, but are not limited to, conformance with established Performance Standards, quantitative monitoring to assess the effectiveness of control measures, measurements or estimates of pollutant load reductions, detailed accounting of Program accomplishments, funds expended, or staff hours utilized. Methods to improve effectiveness in the implementation of tasks and activities, including development of new, or modification of existing, Performance Standards, shall be identified through the Program's review and improvement process, where appropriate. The Annual Report information shall be adequate to describe each Permittee's compliance status with respect to the provisions of this Order, and the required actions under the Management Plan and the Annual Workplans.

i. **Enhanced Annual Reporting Requirements for Public Information and Participation**
The level of implementation of PIP activities shall be reported annually. The Program will report on the implementation of its specific workplan to evaluate effectiveness of the PIP component starting in September 2004 for the 2003-2004 Annual Report, and annually thereafter. This evaluation will be included in the General Program deliverables for General Program activities and in the deliverables by Permittees for activities that were conducted by individual Permittees.

ii. **Enhanced Annual Reporting Requirements for Illicit Discharge Controls**
The goal of the Illicit Discharge Controls component is to identify and eliminate non-permissible non-stormwater discharges associated with illegal dumping or illicit connections to the storm drain system.

Enhanced annual reporting for this Program component shall, at a minimum, include:

1. Training and coordination of staff most likely to encounter illicit discharges; and

2. Identification and follow-up for all illicit discharges and problem areas identified within each Permittee's jurisdiction, including number of responses to reports of potential impacts to water quality, complaints, spills, and other similar reports. These should be, at a minimum, characterized as to report source, nature of the report, location of the event, reported source of pollutants, and follow-up and investigation, if any. For any actual non-compliance or threatened non-compliance noted during the investigation of the report, the nature of follow-up will be reported, through resolution of the noted issue, up to and including enforcement action.

iii. **Enhanced Annual Reporting Requirements for Industrial and Commercial Discharge Controls**
The goal of the Industrial and Commercial Discharge Controls component is to reduce or eliminate adverse water quality impacts from activities conducted at any industrial and commercial site within the Permittees' jurisdictions that have a potential for significant urban runoff pollution. Performance measures for this Program component are in the Management Plan.

Frequency of inspection of a given site or category of industry or commercial business with a potential to impact stormwater may vary depending upon known or anticipated threats to

water quality, but should not be less frequent than once in five years. Inspection frequency can be reduced for sites that demonstrate a history of compliance or exhibit little threat to water quality, and increased for sites that demonstrate non-compliance, or exhibit significant threat to water quality.

Permittees shall report a summary of inspection activity for any non-compliance noted during an inspection, the nature of follow-up through resolution of the noted issue, up to and including enforcement action.

b. Annual Workplans and Updates

By 100 days from the adoption of this order and on March 1st of each year thereafter,, the Permittees shall submit draft Workplans and Updates that describe the proposed implementation of the Management Plan for the next fiscal year in areas described below.

The Workplans and Updates shall consider the status of implementation of current year activities and actions of the Permittees, problems encountered, and proposed solutions, and shall address any comments received from the Executive Officer on the previous year's Annual Report. The Workplans and Updates shall include clearly defined tasks, responsibilities, and schedules for implementation of Program and Permittee actions for the next fiscal year.

The Workplans and Updates shall be deemed to be final and incorporated into the Management Plan and this Order as of June 1 unless previously determined to be unacceptable by the Executive Officer. The Permittees shall address any comments or conditions of acceptability received from the Executive Officer on their draft Workplans and Updates prior to the submission of their Annual Report on September 15, at which time the modified Workplans and Updates shall be deemed to be incorporated into the Management Plan and this Order unless disapproved of by the Executive Officer.

i. Performance Standards and Monitoring Plan Updates

Any proposal for development of new, or modification of existing, Performance Standards in accordance with Provision C.2.b, as well as alternative monitoring activities as required in Provision C.8, shall be reported in the workplans.

ii. Public Information and Participation

By 100 days from the adoption of this order, the Program shall submit a specific workplan to evaluate the effectiveness of the PIP component.

iii. Industrial and Commercial Discharge Controls Program

Each Permittee, except the Alameda County Flood Control and Water Conservation District and Zone 7 of the Alameda County Flood Control District, shall submit an annual update to its five-year Industrial and Commercial Business Inspection Plan (Inspection Plan) with the following information:

1. Estimated number of facilities to be inspected listed by type of business or geographical sector as outlined in the Inspection Plan; and,
2. Estimated number of high priority facilities to be inspected on a yearly basis based on priorities described in Inspection Plan.

The range of industrial and commercial businesses that will require regular inspection is not limited to those industrial sites that are required to obtain coverage under the State Board's Industrial Stormwater NPDES General Permit.

c. One-time Reports and Five-Year Inspection and Illicit Discharge Control Action Plans

In addition to Annual Reports and Annual Updates, the Permittees shall provide the following information by 100 days of adoption of this order:

i. Illicit Discharge Controls

Each Permittee will develop a five-year Illicit Discharge Control Action Plan to reduce, control and/or otherwise address sources of discharge. Performance measures for this program area are in the Management Plan.

Permittees shall describe the specific procedures they use to follow-up on non-compliance.

Permittees shall identify an alternate publicized number to report illicit discharges in addition to 911.

Proposed changes to the five-year Illicit Discharge Control Action Plan shall be submitted annually through subsequent workplans.

ii. Industrial and Commercial Discharge Controls Program

Each Permittee, except the Alameda County Flood Control and Water Conservation District and Zone 7 of the Alameda County Flood Control District, shall submit a five-year Industrial and Commercial Business Inspection Plan (Inspection Plan) containing the following information:

1. Estimate of total number of Industrial and Commercial sites requiring inspection, within each Permittee's jurisdiction, for the five-year period;
2. A list of types of business within the Permittee's jurisdiction with an estimate of the number of businesses in each category;
3. A description of the process for prioritizing inspections and rationale for inspecting a business or business type more frequently or before another business or business type. Each Permittee will explain criteria used for designating a business as high priority. If any geographical areas are to be targeted for yearly inspections because of their high potential for stormwater pollution, these areas should be indicated in the Inspection Plan, with optional maps indicating priority zoning, if any, in each Permittees' jurisdiction;
4. A description of Permittee's procedures for follow-up inspections, enforcement actions or referral to another agency, including appropriate time periods of action; and,
5. An Annual Update detailing inspection activities for the next fiscal year shall be due by March 1 of the year following the submission of each Annual Report. The Annual Update shall be subject to the due dates and Executive Officer approvals stated in Provision C.7.b and reporting requirements further listed in Provision C.7.b.iii.

Each Permittee shall also submit a description of a data management system that the Permittee maintains to track changes in industrial and commercial sites, as well as inspection and enforcement activity of these sites.

8. **Monitoring Program**

a. The Permittees shall implement a Monitoring Program that supports the development and implementation and demonstrates the effectiveness of the Management Plan and related work

conducted by the Program among other goals. The Monitoring Program shall be a multi-year receiving waters monitoring plan designed to achieve the following objectives:

- Characterization of representative drainage areas and stormwater discharges, including land-use characteristics pollutant concentrations and mass loadings;
- Assessment of existing or potential adverse impacts on beneficial uses caused by pollutants of concern in stormwater discharges, including an evaluation of representative receiving waters;
- Identification of potential sources of pollutants of concern found in stormwater discharges; and,
- Evaluation of effectiveness of representative stormwater pollution prevention or control measures.

The Monitoring Program shall include the following:

i. Provision for conducting and reporting the results of special studies conducted by the Permittees which are designed to determine effectiveness of BMPs or control measures, define a Performance Standard or assess the adverse impacts of a pollutant or pollutants on beneficial uses.

ii. Provisions for conducting watershed monitoring activities including: identification of major sources of pollutants of concern; evaluation of the effectiveness of control measures and BMPs; and use of physical, chemical and biological parameters and indicators as appropriate.

iii. Identification and justification of representative sampling locations, frequencies and methods, suite of pollutants to be analyzed, analytical methods, and quality assurance procedures. Alternative monitoring methods in place of these (special projects, financial participation in regional, state, or national special projects or research, literature review, visual observations, use of indicator parameters, recognition and reliance on special studies conducted by other programs, etc.) may be proposed with justification.

b. Multi-Year Monitoring and Assessment Plan. In conjunction with the submissions required by Provision C.10, the Permittees shall submit, by 100 days of adoption of this order, a multi-year monitoring plan, acceptable to the Executive Officer, designed to comply with these Monitoring Program requirements. The monitoring and assessment plan shall include provisions for monitoring Central and South/Lower San Francisco Bay by participating in the San Francisco Estuary Regional Monitoring Program for Trace Substances or an acceptable alternative monitoring program.

c. Annual Monitoring Program Plan. The Permittees shall submit, by 100 days from the adoption of this order and on March 1st of each year thereafter, an annual monitoring program plan, acceptable to the Executive Officer, that includes clearly defined tasks, responsibilities, and schedules for implementation of monitoring activities for the next fiscal year designed to comply with these Monitoring Program requirements.

9. Non-Stormwater Discharges

a. Exempted Discharges

In carrying out Prohibition A of this Order, the following non-stormwater discharges are not prohibited unless they are identified by the Permittees or the Executive Officer as sources of pollutants to receiving waters:

i. Flows from riparian habitats or wetlands;
ii. Diverted stream flows;
iii. Springs;
iv. Rising ground waters; and
v. Uncontaminated groundwater infiltration.

If any of the above categories of discharges, or sources of such discharges, are identified as sources of pollutants to receiving waters, then such categories or sources shall be addressed as conditionally exempted discharges in accordance with Provision C.9.b.

b. Conditionally Exempted Discharges

The Program has developed control measures to eliminate adverse impacts of certain conditionally exempted discharges as listed in the Findings (uncontaminated pumped groundwater, foundation drains, water from crawl spaces pumps, footing drains and planned and unplanned discharges from potable water sources, and water line and hydrant flushing). The following non-stormwater discharges are not prohibited if they are identified by either the Permittees (and incorporated into the Management Plan) or the Executive Officer as not being sources of pollutants to receiving waters or if appropriate control measures to prevent or eliminate adverse impacts of such sources are developed and implemented under the Management Plan in accordance with Provision C.9.c:

i. Uncontaminated pumped groundwater;
ii. Foundation drains;
iii. Water from crawl space pumps;
iv. Footing drains;
v. Air conditioning condensate;
vi. Irrigation water;
vii. Landscape irrigation;
viii. Lawn or garden watering;
ix. Planned and unplanned discharges from potable water sources;
x. Water line and hydrant flushing;
xi. Individual residential car washing; and
xii. Discharges or flows from emergency fire fighting activities;

The Permittees shall identify and describe the categories of discharges listed in Provision C.9.b that they wish to exempt from Prohibition A in periodic submissions to the Executive Officer. For each such category, the Permittees shall identify and describe as necessary and appropriate to the category either documentation that the discharges are not sources of pollutants to receiving waters or circumstances in which they are not found to be sources of pollutants to receiving waters. Otherwise, the Permittees shall describe control measures to eliminate adverse impacts of such sources, procedures and Performance Standards for their implementation, procedures for notifying the Regional Board of these discharges, and procedures for monitoring and record management. Permittees shall resubmit appropriate revised and/or additional control measures whenever there is a change in the quality of the discharge. For example, the use of recycled water for irrigation shall lead to the implementation of additional control measures in order to

reduce chlorine levels before releasing the discharge to the storm drain system. Such submissions shall be deemed to be incorporated into the Management Plan unless disapproved by the Executive Officer or acted on in accordance with Provision C.12 and the NPDES permit regulations.

c. Permit Authorization for Exempted Discharges

i. Discharges of non-stormwater from sources owned or operated by the Permittees are authorized and permitted by this Order, if they are in accordance with the conditions of this Provision and the Management Plan.

ii. The Regional Board may require dischargers of non-stormwater other than the Permittees to apply for and obtain coverage under an NPDES permit and comply with the control measures developed by the Permittees pursuant to this Provision. Non-stormwater discharges that are in compliance with such control measures may be accepted by the Permittees and are not subject to Prohibition A.

iii. The Permittees may propose, as part of their annual updates to the Management Plan under Provision C.7 of this Order, additional categories of non-stormwater discharges to be included in the exemption to Prohibition A. Such proposals are subject to approval by the Regional Board in accordance with the NPDES permit regulations.

10. Water Quality-Based Requirements for Specific Pollutants of Concern

In accordance with Provision C.1 and Finding 22 of this Order, the Permittees shall implement control programs for pollutants that have the reasonable potential to cause or contribute to exceedances of water quality standards. These control programs shall include the following:

a. Control Program for Copper

The Permittees have submitted a Copper Pollutant Reduction Plan (PRP) that includes a general strategy to monitor the concentration of copper in stormwater runoff and lists BMPs that may be used to reduce copper discharges. The program will further refine the Copper PRP by providing detailed descriptions of activities in each fiscal year. The refined PRP shall be included in the Program's submittal of the Annual Workplan by 100 days of adoption of this Order, and evaluations and results shall be reported in the Annual Reports.

b. Control Program for Mercury

The Mercury Pollutant Reduction Plan (Mercury Plan) shall be refined to include all of the following:

i. Development and adoption of policies, procedures, and/or ordinances calling for:

- The reduction of mercury from controllable sources in urban runoff to the maximum extent practicable, including the identification of mercury-containing products used by the Permittees and a schedule for their timely phase out where appropriate; and
- Coordination with solid waste management agencies to ensure maximum recycling of fluorescent lights and/or establishment of "take back" programs for the public collection of mercury-containing household products (potentially including thermometers and other gauges, batteries, fluorescent and other lamps, switches, relays, sensors and thermostats);

ii. A schedule for assisting the Regional Board staff in conducting an assessment of the contribution of air pollution sources to mercury in the Permittees' urban runoff (potentially including an identification of significant mercury air emission sources, an inventory of relevant mercury air emissions and a review of options for reducing or eliminating mercury air emissions);

iii. Assessment of the sediment mercury concentrations and percentage of fine material at the base of key watersheds, above the tide line;

iv. A public education, outreach and participation program designed to reach residential, commercial and industrial users or sources of mercury-containing products or emissions; and,

v. Participation with other organizations to encourage the electric light bulb manufacturing industry to reduce mercury associated with the disposal of fluorescent lights through product reformulation.

The Mercury Plan shall be refined and incorporated in the Program's submittal of the Annual Workplan by 100 days of adoption of this order. The Mercury Plan shall refine the schedule for implementation that Permittees are currently working under. To facilitate the development of the actions specified above, the Permittees may coordinate with publicly owned treatment works and other agencies to develop cooperative plans and programs.

c. Control Program for Pesticides

To address the impairment of urban streams by diazinon and other pesticides, the Permittees shall continue to implement and refine the previously submitted Diazinon Pollutant Reduction Plan (Pesticide Plan) to address their own use of pesticides including diazinon, other lower priority pesticides no longer in use such as chlordane, dieldrin and DDT, and the use of such pesticides by other sources within their jurisdictions. The Permittees may coordinate with agencies and organizations such as the Bay Area Stormwater Management Agencies Association or the Urban Pesticide Committee. The Pesticide Plan shall include a schedule for implementation and a mechanism for reviewing and amending the plan, as necessary, in subsequent years. The refined Pesticide Plan shall be resubmitted for approval to the Executive Officer by 100 days of adoption of this order.

i. Pesticide Use by Permittees

The Pesticide Plan shall include a program to quantitatively identify each Permittee's pesticide use by preparing a periodically updated inventory of pesticides used by all internal departments, divisions, and other operational units as applicable to each Permittee. Schools and special district operations shall be included in the Pesticide Plan to the full extent of each Permittee's authority. The Permittees shall adopt and verifiably implement policies, procedures, and/or ordinances requiring the minimization of pesticide use and the use of integrated pest management (IPM) techniques in the Permittees' operations if they have not already done so. The policies, procedures, and/or ordinances shall include: 1) commitments to reduce use, phase-out, and ultimately eliminate use of pesticides that cause impairment of surface waters, and 2) commitments to not increase the Permittees' use of organophosphate pesticides without justifying the necessity and minimizing adverse water quality impacts. The Permittees shall implement training programs for their employees who use pesticides, including pesticides available over the counter. These programs shall address pesticide-related surface water toxicity, proper use and disposal of such pesticides, and least toxic

methods of pest prevention and control, including IPM. The Pesticide Plan shall be subject to updating via the Permittees' improvement process.

ii. Other Pesticide Sources

To address other pesticide users within the Permittees' jurisdictions (including schools and special district operations that are not owned or operated by the Permittees), the Pesticide Plan shall include the following elements:

1. Public education and outreach programs. Such programs shall be designed for residential and commercial pesticide users and pest control operators. These programs shall provide targeted information concerning proper pesticide use and disposal, potential adverse impacts on water quality, and alternative, least toxic methods of pest prevention and control, including IPM. These programs shall also target pesticide retailers to encourage the sale of least toxic alternatives and to facilitate point-of-sale public outreach efforts. These programs may also recognize local least toxic pest management practitioners.
2. Mechanisms to discourage pesticide use at new development sites. Such mechanisms shall encourage the consideration of pest-resistant landscaping and design features, minimization of impervious surfaces, and incorporation of stormwater detention and retention techniques in the design, landscaping, and/or environmental reviews of proposed development projects. Education programs shall target individuals responsible for these reviews and focus on factors affecting water quality impairment.
3. Coordination with household hazardous waste collection agencies. The Permittees shall support, enhance, and help publicize programs for proper pesticide disposal.

iii. Other Pesticide Activities

The Permittees shall work with municipal stormwater management agencies in the Bay Area and other parties with interest in or responsibilities for reducing pesticide-related toxicity in surface water (for example, with the Urban Pesticide Committee) to assess which pesticide products, uses and past uses pose the greatest risks to surface water quality. Along with incorporating this information into the programs described above, the Permittees shall encourage US EPA, the California Department of Pesticide Regulation (DPR), and pesticide manufacturers to understand the adverse impacts of pesticides on urban creeks, monitor US EPA and DPR activities related to the registration of diazinon products and uses, and actively encourage US EPA, DPR, and pesticide manufacturers to eliminate, reformulate, or otherwise curtail, to the extent possible, the sale and use of pesticides that pose substantial risks to surface water quality (e.g., when there is a high potential for runoff).

The Program shall also work with the Regional Board and other agencies in developing a TMDL for diazinon in impaired urban creeks. The Program will participate in stakeholder forums and collaborative technical studies necessary to assist the Regional Board in completing the TMDL. These studies may include, but shall not be limited to, additional diazinon monitoring and toxicity testing.

d. Control Program for Polychlorinated Biphenyls (PCBs) and Dioxin Compounds

The Permittees shall work with other municipal stormwater management agencies in the Bay Area to implement a plan to identify, assess, and manage controllable sources of PCBs and dioxin-like compounds found in urban runoff (PCBs/Dioxin Plan). The PCBs/Dioxin Plan shall include actions to:

i. Characterize the representative distribution of PCBs and dioxin-like compounds in the urban areas of Alameda County to determine: a) what concentrations and what types of PCBs and dioxin-like compounds are present in urban runoff, b) how such PCBs or dioxin-like compounds are distributed in urban areas, and c) whether storm drains or other surface drainage pathways are sources of PCBs or dioxin-like compounds in themselves, or whether there are specific locations within urban watersheds where prior or current uses result in land sources contributing to discharges of PCBs or dioxin-like compounds to San Francisco Bay via urban runoff conveyance systems;

ii. Provide information to allow calculation of PCBs and dioxin-like compound loads to San Francisco Bay from urban runoff conveyance systems;

iii. Identify control measures and/or management practices to eliminate or reduce discharges of PCBs or dioxin-like compounds conveyed by urban runoff conveyance systems in Alameda County;

iv. Implement actions to eliminate or reduce discharges of PCBs or dioxin-like compounds from urban runoff conveyance systems from controllable sources (if any); and,

v. Develop a long-term management plan for eliminating and reducing PCB discharges.

vi. Action Plan: The PCBs/Dioxin Plan shall describe specific steps to be taken by the Permittees for implementing any emission reduction strategies to the MEP standard. The Plan shall note the specific actions to be taken, identify the agency(ies) responsible for implementation, and include a timeline for the completion of each action item. The portion of the PCB/Dioxin Plan addressing action areas d.i and d.ii shall be implemented forthwith for PCBs. The workplan that was submitted for PCBs addressing action areas d.i, d.ii, and d.iii, including a schedule for implementation, shall be refined and submitted, acceptable to the Executive Officer, by June 1, 2003. A workplan addressing areas d.i and d.ii for dioxin-like compounds shall be submitted, acceptable to the Executive Officer, by March 1, 2004. The portion of the PCB/Dioxin Plan addressing action area d.iv, including a schedule for implementation, shall be submitted, acceptable to the Executive Officer, within one year after adoption of this Order for PCBs and within eighteen months after adoption of this Order for dioxin-like compounds; implementation shall begin no later than one year and six months after adoption of this Order for PCBs and two years after adoption of this Order for dioxin-like compounds, although implementation of early action priorities should take place before that date. The Permittees may coordinate with other stormwater programs and/or other organizations to implement cooperative plans and programs to facilitate implementation of the specified actions.

e. Control Program for Sediment

The Permittees shall conduct an analysis of excess sediment impairment in urban streams and assess management practices that are currently being implemented and additional management practices that will be implemented to prevent or reduce excess sediment impairment in urban creeks, and implement any additional management practices necessary to prevent or reduce excess sediment impairment in urban creeks.

11. Watershed Management

The Permittees shall implement watershed management measures based on identification of relevant watershed characteristics (land imperviousness, conditions of creeks, land uses, etc.) and

identification of control measures and other actions in the Management Plan that are appropriately implemented on a watershed basis with the recognition that there may be unique values, problems, goals, and strategies specific to individual watersheds. Watershed management measures also seek to develop and implement the most cost effective approaches to solving identified problems and to coordinate these activities with other related programs.

a. The Permittees shall submit to the Regional Board, within a year after adoption of this Order, a report concerning the integration of watershed management activities into the Management Plan. The Program may submit this report on behalf of the Permittees. The report shall, at a minimum:

   i. Identify the watersheds that are relevant to each Permittee;

   ii. Identify key characteristics related to urban runoff in each watershed and program elements related to such characteristics;

   iii. Provide a priority listing of watersheds to be assessed and a schedule for conducting such assessments, including: 1) investigating beneficial uses and causes of impairment, 2) reviewing, compiling, and disseminating environmental data, and 3) developing and implementing strategies for controlling adverse impacts of land use on beneficial uses;

   iv. Assess each Permittee's implementation of watershed management activities; and,

   v. Outline steps needed for improvement in addressing priorities within each watershed.

b. The Program should also work with Regional Board staff to apply a regulatory strategy that allows the Permittees to find ways to coordinate with other agencies within a specific watershed to protect beneficial uses.

12. Modifications to the Management Plan

It is anticipated that the Management Plan may need to be modified, revised, or amended from time to time to respond to changed conditions and to incorporate more effective approaches to pollutant control. Requests for changes may be initiated by the Executive Officer or by the Permittees. Minor changes may be made with the Executive Officer's approval and will be brought to the Regional Board as information items and the Permittees and interested parties will be notified accordingly. If proposed changes imply a major revision of the Program, the Executive Officer shall bring such changes before the Regional Board as permit amendments and notify the Permittees and interested parties accordingly.

13. Modifications to this Order

This Order may be modified, or alternatively, revoked or reissued, prior to the expiration date as follows:

a. To address significant changed conditions identified in the technical reports required by the Regional Board that were unknown at the time of the issuance of this Order;

b. To incorporate applicable requirements of statewide water quality control plans adopted by the State Board or amendments to the Basin Plan approved by the State Board; or

c. To comply with any applicable requirements, guidelines, or regulations issued or approved under Section 402(p) of the CWA, if the requirement, guideline, or regulation so issued or approved contains different conditions or additional requirements not provided for in this Order. The Order as modified or reissued under this paragraph shall also contain any other requirements of the CWA then applicable.

14. Each of the Permittees shall comply with all parts of the Standard Provisions contained in Appendix A of this Order.

15. This Order expires on February 19, 2008, five years from the date of adoption of this Order by the Regional Board. The Permittees must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of such date as application for reissuance of waste discharge requirements.

16. Order Nos. 97-030 and 99-049 are hereby rescinded.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on February 19, 2003.

Loretta K. Barsamian
Executive Officer

APPENDICES: PROVISION C.3 REQUIREMENTS:
Table 1. Summary of Annual and One-Time Reporting Requirements
Table 2. Implementation Schedule
STANDARD PROVISIONS

ATTACHMENT A - Alameda Countywide Clean Water Program Stormwater Quality Management Plan - Title Page and Table of Contents

ATTACHMENT B - Watershed Assessment and Monitoring Strategy for Fiscal Years 2002-2008

ATTACHMENT C - Municipalities and Major Open Creeks and Waterbodies in Alameda County

Table 1: Summary of Annual and One-Time Reporting Requirements

Provision	Information to Report	Date
C.3.b *Project Approval Process*	List of any modifications made to development project approval process	2004 & 2005 Annual Reports
	Modification of project review processes completed	Feb. 15, 2005
C.3.c.iii	Optional: Propose an Alternative Group 2 Project definition	No deadline
C.3.e *O & M*	Details of O&M verification program: organizational structure, evaluation, proposed improvements, list/# of inspections and follow-up	Beginning with 2005 Annual Report
C.3.f *Peak Runoff Limitation*	Submit a detailed workplan and schedule	Feb. 15, 2004
	Submit literature review	Feb. 15, 2004
	Submit draft Hydrograph Modification Management Plan (HMP)	Nov. 15, 2004
	Submit final HMP for Regional Board approval	May 15, 2005
C.3.g *Alternative Compliance*	Name and location of alternative project or exemption; Project type and size; Area or percent impervious surface; Reason for granting the alternative project or exemption; Terms of the alternative project or exemption; The stormwater treatment project or regional project receiving the benefit, and the date of completion of the project.	In each Annual Report; Begin the year an alternative project granted
C.3.h *Alternate Certification*	List the projects certified by someone other than a Discharger employee	In each Annual Report
C.3.j *Site Design Guidance*	Summarize the status of review, revision, and implementation of Site Design Measures Guidance and standards	In each Annual Report
	Submit workplan and schedule for revision of guidance	August 15, 2003
	Submit draft proposal of revised standards and guidance	Nov. 15, 2004
	Summarize how any revisions to site design standards and/or guidance have been incorporated into local approval process	Beginning with 2005 Annual Report
C.3.k *Source Control*	Submit draft conditions of approval document for source control measures	August 15, 2004
	Summarize how any revisions to source control measures guidance document have been implemented	Beginning with 2005 Annual Report
C.3.l *General Plan*	Summarize any revisions to General Plans that direct land-use decisions and require implementation of consistent water quality protection measures for development projects	In Annual Reports
C.3.n *Reporting*	List new development and redevelopment projects by name, type of project (using the categories in Provision C.3.c.), site acreage or square footage, square footage of new impervious surface. Where applicable, report treatment measures and numeric sizing criteria used, O&M responsibility mechanism, site design measures used, and source control measures required	In each Annual Report following implementation

Table 2: Implementation Schedule

Provision	Action	Implementation Date
C.3.b	Modify development project approval process as needed	February 15, 2005
C.3.c *Project Categories*	Require stormwater treatment measures at Group 1 Projects	February 15, 2005
	Require stormwater treatment measures at Group 2 Projects in addition to Group 1 Projects	August 15, 2006
	Optional: Propose an Alternative Group 2 Project definition	No deadline
C.3.e *O & M*	Implement an O&M verification program for Group 1 Projects	July 1, 2004
	Begin reporting on O&M verification program in Annual Report	Annually, beginning with Annual Report to be submitted September 2005
	Vector Control Plan	June 1, 2004
C.3.f *Peak Runoff Limitation*	Submit a detailed workplan and schedule	February 15, 2004
	Submit literature review	February 15, 2004
	Submit draft HMP	November 15, 2004
	Submit final HMP for Regional Board approval	May 15, 2005
	Implement HMP	Following Regional Board approval
C.3.g *Alternative Compliance*	Report on any alternative project or exemption(s) granted by the Discharger in Annual Report, due September of each year	Begin the year an alternative project granted
C.3.j *Site Design*	Submit workplan and schedule for completion of review, revision, and implementation of design standards and guidance	August 15, 2003
	Submit draft proposal of revised standards and guidance	Nov. 15, 2004
	Incorporate revisions into local process and fully implement site design standards and guidance	Nov. 15, 2005
C.3.k *Source Control*	Submit draft conditions of approval document for source control measures	August 15, 2004
	Implement source control measures guidance document	February 15, 2005
C.3.l *General Plans*	Confirm that any water quality and watershed protection principles and policies necessary to implement measures required by Provision C.3. for applicable development projects have been incorporated into General Plan or equivalent plan	By Implementation Date of corresponding action
C.3.m	Revise Environmental Review Processes as needed to evaluate water quality impacts of stormwater runoff from new development and significant redevelopment	May 15, 2004
C.3.n *Reporting*	See Table 1	See Table 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

August 1993

STANDARD PROVISIONS AND REPORTING REQUIREMENTS

For

NPDES SURFACE WATER DISCHARGE PERMITS

A. GENERAL PROVISIONS

1. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.

2. All discharges authorized by this Order shall be consistent with the terms and conditions of this Order.

3. Duty to Comply

   a. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act, or amendments thereto, for a toxic pollutant which is present in the discharge authorized herein and such standard or prohibition is more stringent than any limitation upon such pollutant in a Board adopted Order, discharger must comply with the new standard or prohibition. The Board will revise or modify the Order in accordance with such toxic effluent standard or prohibition and so notify the discharger.

   b. If more stringent applicable water quality standards are approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the discharger must comply with the new standard. The Board will revise and modify this Order in accordance with such more stringent standards.

   c. The filing of a request by the discharger for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. [40 CFR 122.41(f)]

4. Duty to Mitigate

   The discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this order and permit which has a reasonable likelihood

d. To photograph, sample, and monitor, at reasonable times for the purpose of assuring compliance with the order and permit or as otherwise authorized by the Clean Water Act, any substances or parameters at any locations. [40 CFR 122.41(i)]

11. Permit Actions

This Order and Permit may be modified, revoked and reissued, or terminated in accordance with applicable State and/or Federal regulations. Cause for taking such action includes, but is not limited to any of the following:

a. Violation of any term or condition contained in the Order and Permit;

b. Obtaining the Order and Permit by misrepresentation, or by failure to disclose fully all relevant facts;

c. Endangerment to public health or environment that can only be regulated to acceptable levels by order and permit modification or termination; and

d. Any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

12. Duty to Provide Information

The discharger shall furnish, within a reasonable time, any information the Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit. The discharger shall also furnish to the Board, upon request, copies of records required to be kept by its permit. [40 CFR 122.41(h)]

13. **Bypass** (the intentional diversion of waste streams from any portion of a treatment facility) is prohibited. The Board may take enforcement action against the discharger for plant bypass unless:

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.);

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of

which may result in non-storm water discharges from the facility. The SWPP Plan shall include, at a minimum, the following items:

a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing: the wastewater treatment facility process areas, surface water bodies (including springs and wells), and the discharge point(s) where the facility's storm water discharges to a municipal storm drain system or other points to waters of the State. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.

b. A site map showing:
   i. Storm water conveyance, drainage, and discharge structures;
   ii. An outline of the storm water drainage areas for each storm water discharge point;
   iii. Paved areas and buildings;
   iv. Areas of pollutant contact with storm water or release to storm water, actual or potential, including but not limited to outdoor storage, and process areas, material loading, unloading, and access areas, and waste treatment, storage, and disposal areas;
   v. Location of existing storm water structural control measures (i.e., berms, coverings, etc.);
   vi. Surface water locations, including springs and wetlands;
   vii. Vehicle service areas.

c. A narrative description of the following:
   i. Wastewater treatment process activity areas;
   ii. Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with storm water discharges;
   iii. Material storage, loading, unloading, and access areas;
   iv. Existing structural and non-structural control measures (if any) to reduce pollutants in storm water discharge;
   v. Methods of on-site storage and disposal of significant materials.

d. A list of pollutants that have a reasonable potential to be present in storm water discharge in significant quantities.

3. Storm Water Management Controls

The SWPP Plan shall describe the storm water management controls appropriate for the facility and a time schedule for fully implementing such controls. The appropriateness and priorities of controls in the SWPP Plan shall reflect identified potential sources of pollutants. The description of storm water management controls to be implemented shall include, as appropriate:

g. Employee Training

Employee training programs shall inform all personnel responsible for implementing the SWPP Plan. Training should address spill response, good housekeeping, and material management practices. New employee and refresher training schedules should be identified.

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering storm water discharges. A tracking or follow up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorder. Inspection records shall be retained for five years.

i. Records

A tracking and follow-up procedure shall be described to ensure that adequate response and corrective actions have been taken in response to inspections.

4. An annual facility inspection shall be conducted to verify that all elements of the SWPP Plan are accurate and up to date. This results of this review shall be reported in the annual report to the Board on October 1 of each year.

C. SLUDGE MONITORING AND REPORTING

1. When sewage sludge is either sent to a landfill or applied to land as a soil amendment it should be monitored as follows:

a. Sewage sludge disposal shall be monitored at the following frequency:

Metric tons sludge/365 days	**Frequency**
0-290	Once per year
290-1500	Quarterly
1500-15,000	Six times per year
Over 15,000	Once per month

(Metric tons are on a dry weight basis)

b. Sludge shall be monitored for the following constituents:

Land Application: As, Cd, Cr, Cu, Hg, Mo, Ni, Pb, Se, Zn
Municipal Landfill: Paint filter test (pursuant 40 CFR 258)

a. The discharger shall, within ninety (90) days of the effective date of this permit, submit to the Board for approval a description of the existing safeguards provided to assure that, should there be reduction, loss, or failure of electric power, the discharger shall comply with the terms and conditions of its Order. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Board.

b. Should the Board not approve the existing safeguards, the discharger shall, within ninety (90) days of having been advised by the Board that the existing safeguards are inadequate, provide to the Board and the U.S. Environmental Protection Agency a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the permittee shall comply with the terms and conditions of this permit. The schedule of compliance shall, upon approval of the Board Executive Officer, become a condition of the Order.

c. If the discharger already has approved plan(s), the plan shall be revised and updated as specified in the plan or whenever there has been a material change in design or operation. A revised plan shall be submitted to the Board within ninety (90) days of the material change.

3. POTW facilities subject to this order and permit shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations.

E. GENERAL REPORTING REQUIREMENTS

1. Signatory Requirements

a. All reports required by the order and permit and other information requested by the Board or USEPA Region 9 shall be signed by a principal executive officer or ranking elected official of the discharger, or by a duly authorized representative of that person. [40 CFR 122.22(b)]

b. Certification

All reports signed by a duly authorized representative under Provision E.1.a. shall contain the following certification:

appropriate, on preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. The technical report or updated revisions should:

a. Identify the possible sources of accidental loss, untreated or partially treated waste bypass, and polluted drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

b. Evaluate the effectiveness of present facilities and procedures and state when they became operational.

c. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

This Board, after review of the technical report or updated revisions, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of this Order, upon notice to the discharger. If the discharger already has an approved plan(s) he shall update them as specified in the plan(s).

6. Compliance Reporting

a. Planned Changes

The discharger shall file with the Board a report of waste discharge at least 120 days before making any material change or proposed change in the character, location or volume of the discharge.

b. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final compliance dates contained in any compliance schedule shall be submitted within 10 working days following each scheduled date unless otherwise specified within this order and permit. If reporting noncompliance, the report shall include a description of the reason for failure to comply, a description and schedule of tasks necessary to achieve compliance and an estimated date for achieving full compliance. A final report shall be submitted within 10 working days of achieving full compliance, documenting full compliance

c. Anticipated Non-compliance

All POTWs must provide adequate notice to the Board of:

2. Any violation of the permit constitutes violation of the California Water Code and regulations adopted hereunder and the provisions of the Clean Water Act, and is the basis for enforcement action, permit termination, permit revocation and reissuance, denial of an application for permit reissuance; or a combination thereof.

3. The Board may impose administrative civil liability, may refer a discharger to the State Attorney General to seek civil monetary penalties, may seek injunctive relief or take other appropriate enforcement action as provided in the California Water Code or federal law for violation of Board orders.

4. It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this order and permit.

5. A discharger seeking to establish the occurrence of any upset (See Definitions, G. 24) has the burden of proof. A discharger who wishes to establish the affirmative defense of any upset in an action brought for noncompliance shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:

   a. an upset occurred and that the permittee can identify the cause(s) or the upset;

   b. the permitted facility was being properly operated at the time of the upset;

   c. the discharger submitted notice of the upset as required in paragraph E.6.d.; and

   d. the discharger complied with any remedial measures required under A.4.

   No determination made before an action for noncompliance, such as during administrative review of claims that noncompliance was caused by an upset, is final administrative action subject to judicial review.

   In any enforcement proceeding, the discharger seeking to establish the occurrence of any upset has the burden of proof. [40 CFR 122.41(n)]

G. DEFINITIONS

1. Bypass means the intentional diversion of waste streams from any portion of treatment facility.

2. Daily discharge means:

a. Pollutants which create a fire or explosion hazard in the POTW;

b. Pollutants which will cause corrosive structural damage to the POTW, or wastewaters with pH lower than 5.0 pH units, unless the facilities are specifically designed to accommodate such wastewater;

c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;

d. Any pollutant, including oxygen-demanding pollutants (e.g., BOD) released into the wastewater system at a flow rate and/or pollutant concentration which will cause interference with the POTW.

e. Heat in amounts which will inhibit biological activity in the POTW and result in interference, or heat in such quantities that the temperature at the POTW treatment plant exceeds 40°C (104°F) unless the works is designed to accommodate such heat or the Board approves alternate temperature limits.

10. Indirect discharger means a non-domestic discharger introducing pollutants into a publicly owned treatment and disposal system.

11. Initial dilution is the process which results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.

12. Mass emission rate is obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.345}{N} \left(\sum_{i=1}^{N} Q_i C_i \right)$$

$$\text{Mass emission rate (kg/day)} = \frac{3.785}{N} \left(\sum_{i=1}^{N} Q_i C_i \right)$$

In which 'N' is the number of samples analyzed in any calendar day. 'Q_i' and 'C_i' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' grab samples which may be taken in any calendar day. If a composite sample is taken, 'C_i' is the concentration measured in the composite sample and 'Q_i' is the average flow rate occurring during the period over which samples are composited. The daily concentration measured over any calendar day of all constituents shall be determined from the flow- weighted average of the same constituents in the combined waste streams as follows:

N

20. Toxic pollutant means any pollutant listed as toxic under Section 307(a)(1) of the Clean Water Act or under 40 CFR S401.15.

21. Total Identifiable Chlorinated hydrocarbons (TICH) shall be measured by summing the individual concentrations of DDT, DDD, DDE, aldrin, BHC, chlordane, endrin, heptachlor, lindane, dieldrin, PCBs and other identifiable chlorinated hydrocarbons.

22. Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass or overflow. It does not mean economic loss caused by delays in production.

23. Untreated waste is defined as raw wastewater.

24. Upset means an exceptional incident in which there is unintentional temporary noncompliance with effluent technology based permit limitations in the order and permit because of factors beyond the reasonable control of the discharger. It does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

25. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in this order and permit. The requirements of this order and permit are applicable to the entire volume of water, and the material therein, which is disposed of to surface and ground waters of the State of California.

ATTACHMENT A

Alameda Countywide Clean Water Program Stormwater Quality Management Plan - Title Page and Table of Contents

MEMBER AGENCIES:

Alameda

Alameda County

Alameda County Flood Control and Water Conservation District

Albany

Berkeley

Dublin

Emeryville

Fremont

Hayward

Livermore

Newark

Oakland

Piedmont

Pleasanton

San Leandro

Union City

Zone 7 of the Alameda County Flood Control District

DRAFT STORMWATER MANAGEMENT PLAN

July 2001 – June 2008

Alameda Countywide Clean Water Program

A Consortium of Local Agencies

TABLE OF CONTENTS

ATTACHMENT B

Watershed Assessment and Monitoring Strategy for Fiscal Years 2002-2008

I. INTRODUCTION AND SCOPE

ACCWP's NPDES permit responsibilities include collecting information on stormwater pollution, the condition of receiving waters, and other data necessary to address problems caused by urban runoff. This document provides an overview of the Program's long-term strategy for monitoring and assessment activities. The Introduction reviews basic terminology and the relation between the Program's organizational framework and the Regional Board's guidance. The "Roadmap" in Part II provides summary tables of the Program's current and planned activities towards assessing the conditions of individual watersheds or groups of similar watersheds. Part III includes task summaries that describe the objectives and scope of individual tasks or activities planned for the period through June 2008, with references for further background and task information in Part IV.

I.A General objectives for Watershed Assessment and Monitoring/Special Studies

ACCWP's Stormwater Quality Management Plan distributes data and information gathering activities among two program components:

- **Watershed Assessment** focuses on landscape-level attributes of watersheds and streams, and beneficial uses or management issues that are more specifically tied to the physical, biological or social conditions in individual watersheds
- **Monitoring and Special Studies** focus on pollutants and problems that are more uniformly distributed in urbanized areas, or for which the most relevant geographical scale for study and management is larger than individual watersheds.

These components are closely interconnected and their relative roles will continue to evolve within the framework of the Plan and this strategy.

I.B Relation to objectives in BMRS and RWQCB conceptual strategy

Regional Board staff guidance for "monitoring" in the broad sense includes both of these components. The scope and objectives of monitoring and assessment activities have been refined through a number of initiatives including the RMAS, SWAMP and the BMRS. The Regional Board's most recent conceptual strategy is based on the design of its SWAMP studies and uses several categories depending on the spatial extent, type of pollutant or stressor and level of detail and data quality required. Table 1 outlines the objectives for the two ACCWP components and relates them to the terminology used by the Regional Board concept. In general,

- **Watershed Assessment** includes many basic screening activities of Tier 1, which identify the presence or extent of potential problems. It also includes some of the more detailed Tier 2 assessments and studies involved in hypothesis testing or investigations of local problems in specific watersheds. It also includes GIS-based data management and interpretation
- **Monitoring/Special Studies** primarily addresses loadings to San Francisco Bay, Pollutants of Concern, and evaluation and design of BMPs. Regional priorities will be increasingly addressed through participation in the WQASP. Most of the data management and adaptive development of workplans is currently in this component, although that is likely to change over time.

Table 1a Watershed Assessment 6-year objectives and FY03 Workplan

Task Number and objectives for FY2002-FY2008	FY2002-2003 Tasks	Regional Board conceptual monitoring elements
WA-1. Develop and maintain a GIS resource for watershed information: • Provide basic delineation and mapping of all watersheds and significant waterbodies, including land cover types, impervious cover, channel condition and riparian corridor condition. • Integrate existing data for rainfall and surface/ground hydrology • Map sensitive areas for wildlife, fisheries and erosion/sediment processes • Coordinate data sharing with Regional Board, copermittees and other resource management agencies	• Continue mapping support for characterization & management planning in pilot watersheds • improve coverages on channel condition and recommend priorities for field confirmation • Identify other high-priority data needs to support long-term watershed assessment and planning for New Development requirements • Improve data sharing & coordination with Regional Board and Alameda County	**Background and support for:** Watershed Assessment for Tier 1, Tier 2 detailed assessment information for selected watersheds Sources and Loadings Data analysis and hypothesis development for further assessment and monitoring Source identification
WA-2. Use a variety of indicators to assess the condition of streams and watersheds: • Establish expected range of macroinvertebrate indices consitent with maintaining beneficial uses, and apply as screening tool • Select & test additional indicators for local use, including photodocumentation. • Provide on-call resources and training to citizen monitoring groups and local watershed partners, promoting improved and consistent approaches to watershed assessment	• Conduct 2nd year of CSBP sampling in 4 target creeks; work with regional partners on standards for protocols, data analysis and reference condition development. • Coordinate development of creek indicators with Stream Protection Policy and other regional initiatives. • Provide on-call resources and training to co-permittees, citizen monitoring groups and other watershed partners. • Review ways to expand photodocumentation beyond trash assessment (see also MS-3)	Watershed Assessment Tier 1 Rapid Biological Assessment Visual Physical Assessment Photodocumentation (Some water quality screening)
WA-3. Provide useful watershed information to the Program and other watershed stakeholders: • Provide guidance on use of contact recreation indicators • Assist/participate in local watershed pilot projects and assessments • Develop ACCWP website resources for watershed maps and creek information, and	• Develop strategy for assessment of human health risks for light contact recreation, using pathogen testing and other available tools • Support local pilot projects or member agencies' activities for monitoring, watershed assessment and planning. • Prepare watershed maps and other creek information for display on ACCWP website.	Support management actions Support further studies to test hypotheses and suggest actions Identify sources

Table 1b Monitoring and Special Studies 6-year objectives and FY03 Workplan

Task Number and objectives for FY2002-FY2008	FY2002-2003 Tasks	Regional Board conceptual monitoring elements
MS-1. Characterize and track pollutants of concern in urban runoff: • Contribution to Regional Monitoring Program • Contribution for Water Quality Attainment Strategies Program • Sediment monitoring to characterize and track mercury, PCBs, organochlorine pesticides & other sediment pollutants at watershed sites. Continue annual sediment monitoring at 1 or 2 selected index sites per draft "Monitoring Program 2002-2006" • Develop and implement a screeningprogram for ambient water quality characterization • Stormwater sampling for metals, diazinon, toxicity at Castro Valley Creek per draft "Monitoring Program 2002-2006" • Continue additions/refinements to fixed-station database, coordinate data sharing with Reg. Board and SWAMP	• Support RMP and WQASP • Conduct sediment monitoring in watersheds • Sample storm events with antecedent dry weather • Develop a pilot semiannual screening point monitoring design for general water quality parameters, supplemented by data on selected contaminants and physical indicators. • Review past temperature logging datasets and explore appropriate sites/applications for other continuous monitoring • Add diazinon data to database; develop protocol for incorporation of incidental grab samples in to database.	Support RMP for SF Bay water quality Sources and Loadings issues Water Quality screening Data analysis and hypothesis development for further monitoring and management actions Identify sources Coordinate with Tier 2 assessments in a few representative watersheds
MS-2. Evaluate the effectiveness of urban runoff BMPs: • Conduct special studies focusing on TMDL priority pollutants or "threat" pollutants and their sources. • Support New and Redevelopment requirements	• Review local BMPS for leaf & litter, identify potential areas for pilot applications of new BMPs • Support design guidance and HMP development	Evaluate BMP effectiveness Develop hypotheses for further work
MS-3. Provide technical information on management issues involving urban runoff: • Conduct special studies to address data gaps or management issues concerning pollutants of concern and urban runoff impacts. May include: Bay toxicity, trash and sedimentation problems, human health risks • Provide miscellaneous technical on-call support as needed.	• Develop and test trash assessment strategy	Tier 2 assessments-relate management issues to detailed physical, chemical or biological evaluations Detailed source identifications for POCs
MS-4. Coordinate with RMP, BASMAA and WQASP: • Participate in BASMAA Monitoring Committee, RMP technical review, WQASP MOU committees, other regional stakeholder discussions.	Ongoing	Develop hypotheses Adapt annual monitoring plans

II. ROADMAP

II.A Overview of past activities

The monitoring component was initiated in 1988 by a Task Force that was a precurson of the Program. Wet and dry weather monitoring was conducted at 16 fixed stations to estimate nonpoint source loads from Alameda County to San Francisco Bay, and evaluate the effect of stormwater on the receiving waters of the Bay. Fixed station monitoring was continued after this initial characterization period, as part of efforts to improve a regional stormwater database. During its first 5-year permit in 1991-1996, the Program also conducted special studies to characterize pollutant occurrence and reduction in the Demonstration Urban Stormwater Treatment (DUST) Marsh and evaluated other BMPs. The Program also continued previous toxicity testing and conducted a Toxicity Identification Evaluation (TIE) in the San Lorenzo Creek watershed. During the second permit period (1996-2001) the Program conducted extensive studies of the insecticide diazinon, which TIE evidence suggested as the likely cause of toxicity in urban creeks.

In August 1996 the Regional Board staff requested that the Program redirect monitoring resources away from fixed-station, wet-weather monitoring and towards increased watershed assessment and long-term monitoring plans for creeks and other waterbodies. A focused Watershed Management Plan was included in the second Storm Water Management Plan, and pilot activities included training and supervision of volunteer monitors in San Leandro Creek. In 1999 a pilot watershed assessment project was begun in the San Lorenzo Creek watershed by the District. The Program also provided technical assistance to city watershed managers for monitoring and assessment in the Lake Merritt (Oakland) and Laguna Creek (Fremont) watersheds.

A GIS-based Watershed Inventory was initiated in 2000 to support mapping and data management needs for improved assessment data from all watersheds. Because of topographic and development patterns in Alameda County, the assessment strategy will be organized by Watershed Assessment Units (WAUs). Similar to the Planning Watersheds used for SWAMP, WAUs either contain groups of similar small Bay Plain watersheds or are subdivisions of the large Alameda Creek watershed (Figure 1). Within each WAU, individual focus watersheds represent typical conditions and/or areas of special interest (Table 2). Past monitoring and assessment information by the Program and related agencies are summarized in Table 3.

II.B Planned activities

The Program developed a discussion document (Gunther et. al. 2000) recommending that the rationale for monitoring and assessment be linked more strongly to a series of priority management questions. The proposed strategy reflects these concerns and also two organizational trends: a) increasing regional coordination of data collection for Pollutants of Concern; and b) increasing involvement in watershed-based management by member agencies in partnership with community groups and other organizations. The distribution of planned data collection activities among WAUs is outlined in Table 4, with references to task descriptions in Section III.

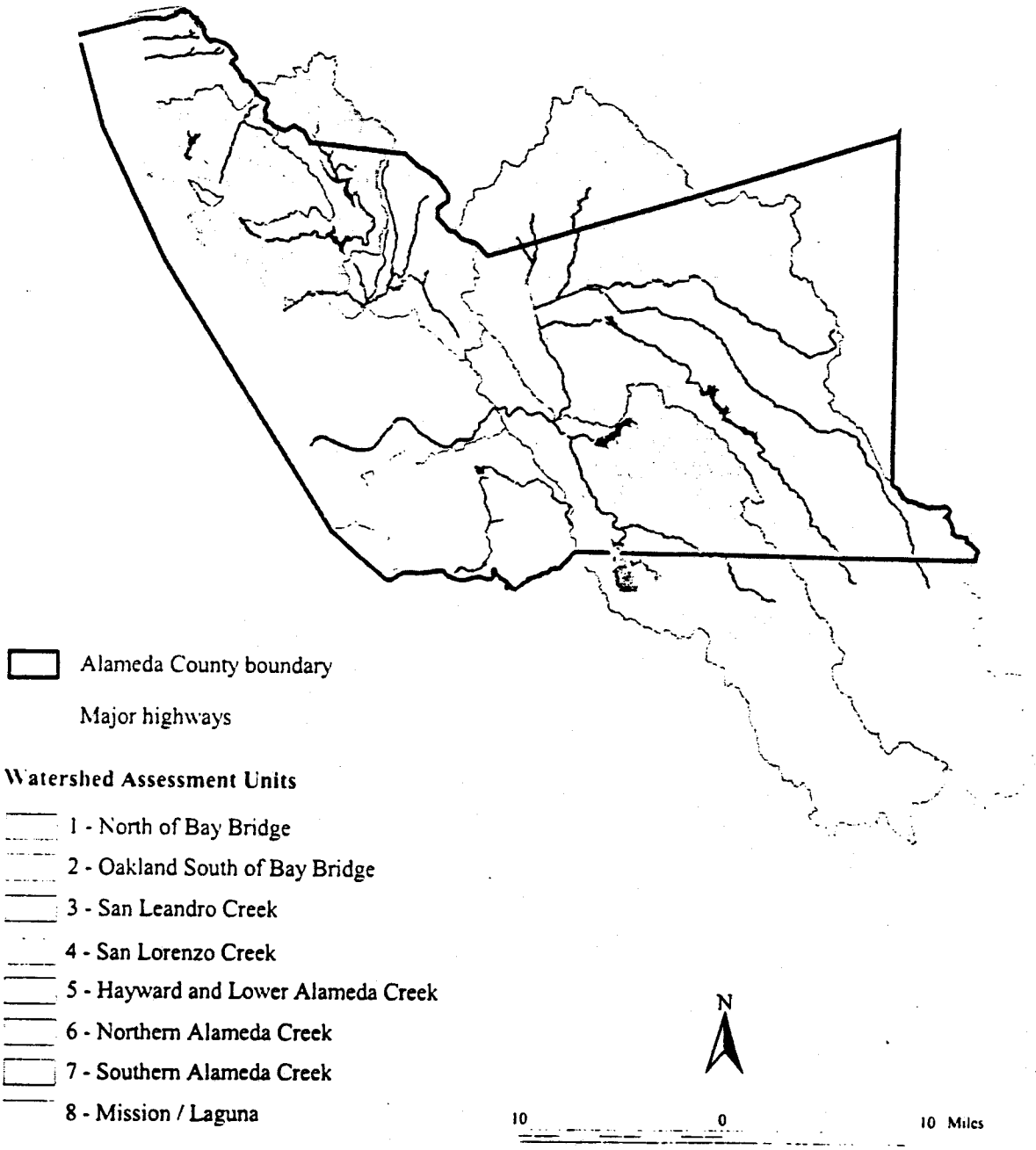


Figure 1. Watershed Assessment Units

Table 2a. Watershed Assessment Units in western Alameda County.

Watershed Assess. Unit	1	2	3	4	5	8	
WAU name	**north of Bay Bridge**	**Oakland, south of Bay Bridge**	**San Leandro Creek**	**San Lorenzo Creek**	**Hayward to Lower Alameda**	**Mission-Laguna**	**Notes**
focus watersheds or representative waterbodies	Codornices Strawberry (L. Temescal)	Sausal Creek Lake Merritt (Arroyo Viejo)	San Leandro Creek	Castro Valley (urban) Crow Creek (mixed) San Lorenzo Creek, Don Castro Reservoir	Old Alameda Creek, Crandall Creek, Lower Alameda Creek	Laguna Creek, Mission Creek Lake Elizabeth	focus creeks have mostly open channels
Characteristics							
Size (sq mi)	22	42	69*	48	81	73	*not all within County
Dominant Land Uses	urban pre-1950	urban pre-1950	urban mostly pre-1950 (lower)	mixed urban-rural (grazing)	mixed urban	mixed urban	Remote Sensing for impervious estimates, 2001-02
Dominant Channel Type (in Bay plain or valley floor; hill reaches typically more open/ natural, esp. to south)	culverts; small catchments direct to Bay (<10 sq. mi)	culverts; small catchments direct to Bay (<10 sq. mi)	earth channel	concrete channel (fragmented natural in upper valleys)	earth channel	earth channel	Preliminary estimates via GIS/ photo analysis 2002
Beneficial Uses (existing or potential)	COLD, REC-1-2, SPWN, WARM, WILD (L. Temescal); *COLD, REC-2, SPWN, WARM, WILD (creeks)*	REC-1-2, SPWN, WARM, WILD (Lake Merritt); *COLD, REC-2, SPWN, WARM, WILD (creeks)*	FRSH, MIGR, REC-1-2, SPWN, WARM, WILD (includes Lake Chabot)	COLD, FRSH, GWR, MIGR, MUN, REC-1-2, SPWN, WARM, WILD (includes reservoirs)	*COLD?, GWR, MIGR, MUN, REC-2, SPWN, WARM, WILD*	COLD, REC-1-2, SPWN, WARM, WILD (Lake Elizabeth); *COLD, REC-2, SPWN, WARM, WILD (creeks)*	*Italics* = not listed in 1995 Basin Plan, hypothetical
Main Issues (tentative list)	urban runoff, recreation, community involvement in restoration	urban runoff, recreation, community involvement in restoration (creeks); also nutrients, pathogens (LM)	urban runoff, dam, community involvement in restoration	urban runoff, erosion/ sedimentation, animal facilities, reservoirs/dams, steelhead habitat, other fisheries	urban runoff, new development, erosion/ sedimentation, recreation, community involvement at Lower Alameda	urban runoff, new development, erosion/ sedimentation, recreation, community involvement in restoration	
Developable open land index (tentative)	low	low	low	medium-high	Medium	medium	verify in 2002 using GIS & planning data

Table 2b. Watershed Assessment Units in eastern Alameda County.

Watershed Assessment Unit	6	7	
WAU name	Alameda Creek-northern	Alameda Creek-southern	Notes
focus watersheds or representative waterbodies	Arroyo Mocho, Arroyo La Laguna (Arr. Las Positas, Lake Del Valle)	Alameda Creek (San Antonio Reservoir)	focus creeks have mostly open channels
Characteristics			
Size (sq mi)	490*	210*	*not all within County
Dominant Land Uses	rural (ranch, farming), and urban	rural	Remote Sensing for impervious estimates, 2001-02
Dominant Channel Type (in Bay plain or valley floor; hill reaches typically more open/ natural, esp. to south)	earth channel	natural	Preliminary estimates via GIS/ photo analysis 2002
Beneficial Uses (existing or potential)	AGR, COLD, GWR, MIGR, MUN, REC-1-2, SPWN, WARM, WILD	AGR?, COLD, FRSH, GWR, MIGR, MUN, REC-1-2, SPWN, WARM, WILD (includes reservoirs)	
Main Issues (tentative list)	urban runoff, new development, erosion/ sedimentation, grazing, mines, groundwater recharge, drinking water, other fisheries	erosion, reservoirs/dams, grazing, steelhead habitat, other fisheries	
Developable open land index (tentative)	high	medium-high	verify in 2002 using GIS & planning data

Table 3a. Status of Monitoring and Assessments organized by Watershed Assessment Units in western Alameda County.

Watershed Assess. Unit	1	2	3	4	5	8	
WAU name	north of Bay Bridge	Oakland, south of Bay Bridge	San Leandro	San Lorenzo	Hayward to Lower Alameda	Mission-Laguna	Notes
Tier 1 -Screening Level							
Chemical-Physical Parameters	Codornices-Friends of 5 Creeks continuous monitoring 2001	Lake Merritt- Monthly grabs (FCD, 1996-97); continuous monitoring (FCD 199x)	(RWQCB-lead pilot 2000-02)	Monthly WQ grabs (FCD, 1995-98); continuous temperature logging (FCD, 2000-02)		City 2001	Also fixed station monitoring in all ACHU's 1989-1995
Chemical-Physical, basic screening by volunteers	(Friends of 5 Creeks*)	(Friends of Sausal Creek, 1998-2001*; LM by Oakland Tech HS 200?)	WCC and Friends of SLC1995-97, continuing			(Math-Science Nucleus, 2000-01)	*volunteer/educational protocols for grabs
Bioassessment-macroinvertebrate		1 site 2001; FOSausal, 2 sites bimonthly screening 1998-2001	(RWQCB-lead pilot, 2 sites 2000-01;)	5 sites 2001; FCD 2-3 sites 1998-2000		4 sites 2001	ACCWP and FCD use CSBP in spring; FOSausal (Friends) = modified biosurvey
Biological-Physical: Fish community and habitat	Resource assessment 2002*	Oakland creeks resource inventory, 1998	WCC 1996, Resource assessment 2002*	Population surveys and habitat mapping (FCD, 2001)		Resource assessment 2002*	Resource assessment includes review of Leidy data
Geophysical							
Stream morphology							
Vegetation							
Flow	(Friends of 5 Creeks, 2001)			(USGS, Castro Valley & San Lorenzo)	(USGS historical)		

Notes: a) Data collection by ACCWP unless otherwise noted in parentheses ( ). b) FCD = Alameda County Flood Control and Water Conservation District

Table 3a. continued

Watershed Assess. Unit WAU name	1 north of Bay Bridge	2 Oakland, south of Bay Bridge	3 San Leandro	4 San Lorenzo	5 Hayward to Lower Alameda	8 Mission-Laguna	Notes
Tier 2-More Focused							
Contaminant Chemistry					Crandall Creek 1994-96		
Nutrients							
Pathogens		LM 1994-97 (4 sites, 2x/month continued by city)					
Toxicity				Castro Valley, San Lorenzo 1995			
Geomorphic and Sediment Source Analysis				(SFEI channel morphology and landslide mapping in Crow, for FCD)	(USGS Alameda Cr. sediment study for FCD)		
Tier 3-TMDL/Pollutants of Concern sampling							
Hg/PCB sediment survey	3 sites 2000; 2 sites 2001	6 sites 2000-01	1 site 2000-01	3 sites 2000-01	3 sites 2000; 2 sites 2001; Dry Creek replaced by Decoto industrial site, 2001		
Hg/PCB Source investigation	Codornices-Hg, 8 sites 2000	Ettie St drains-PCBs, 5 drains/ 9 inlet composites, 2001; Glen Echo Creek PCBs, 2 sites 2001					
PAH sediment survey	2 sites 2000; 2 sites 2001	6 sites 2000-01	1 site 2000-01	3 sites 2000-01	3 sites 2000; 2 sites 2001		
Chlorinated pesticides sediment	2 sites 2001	6 sites 2001	1 site 2001	3 sites 2001	2 sites 2000; 2 sites 2001		
Copper in stormwater				Castro Valley Creek-2000-02 time interval composites			
Diazinon in stormwater				Castro Valley Creek-1995-97 19 events, 1999-2000 2 events			

Table 3b. Status of Monitoring and Assessments organized by Watershed Assessment Units in eastern Alameda County.

Watershed Assessment Unit	6	7	
WAU name	Alameda Creek-northern	Alameda Creek-southern	Notes
Tier 1 -Screening Level			
Chemical-Physical Parameters	(RWQCB-lead pilot 2000-02 in Arroyo Las Positas)		Also fixed station monitoring in all WAU's 1989-1995
Chemical-Physical, basic screening by volunteers	(Amador Valley HS*)		*volunteer/educational protocols for grabs
Bioassessment-macroinvertebrate			ACCWP and FCD use CSBP in spring; FOSausal (Friends) = modified biosurvey
Biological-Physical: Fish community and habitat	Resource assessment 2002*	Resource assessment 2002* (also SFPUC)	Resource assessment includes review of Leidy data
Geophysical			
Stream morphology			
Vegetation			
Flow	(USGS at Niles)	(USGS)	

Notes: a) Data collection by ACCWP unless otherwise noted in parentheses ( ). b) FCD = Alameda County Flood Control and Water Conservation District

Table 3b. continued

Watershed Assessment Unit WAU name	6 Alameda Creek-northern	7 Alameda Creek-southern	Notes
Tier 2-More Focused			
Contaminant Chemistry			
Nutrients			
Pathogens			
Toxicity			
Geomorphic and Sediment Source Analysis	USGS Alameda Cr. sediment study for FCD)		
Tier 3-TMDL/Pollutants of Concern sampling			
Hg/PCB sediment survey	1 site 2000-01 (Niles);	included in Niles site	
Hg/PCB Source investigation			
PAH sediment survey	1 site 2000-01 (Niles)	included in Niles site	
Chlorinated pesticides sediment	1 site 2000-01 (Niles)	included in Niles site	
Copper in stormwater			
Diazinon in stormwater			

Table 4a. ACCWP Planned Monitoring and Assessment activities in western Alameda County

Watershed Assess. Unit	1	2	3	4	5	8	
WAU name	north of Bay Bridge	Oakland, south of Bay Bridge	Lower San Leandro	San Lorenzo	Hayward - Lower Alameda	Mission-Laguna	Fy02-04 Task ID
Tier 1 -Screening Level							
Chemical-Physical Parameters	pilot screening 2002-2003	pilot screening 2002-2003		pilot screening 2002-2003	pilot screening 2002-2003	pilot screening 2002-2003	MS-1.4 sampling
Bioassessment-macroinvertebrate		1 site 2002		5 sites 2002		4 sites 2002	WA-2.1 sampling
Biological-Physical: Fish community and habitat							WA-1.1 planning, WA-3.2 field checking
Stream morphology							WA-2.1 potential
Flow							WA-2.1 potential
Tier 2-More Focused	Develop list of priority watersheds and issues in 2002-03						
Contaminant Chemistry	pilot screening 2002-2003	pilot screening, (L. Merritt monitoring by City-planned)		pilot screening 2002-2003	pilot screening 2002-2003	pilot screening 2002-2003	MS-1.4 selected parameters
Nutrients							MS-1.4 selected sites
Pathogens							WA-3.1 potential
Toxicity				Castro Valley Creek-post-diazinon phase-out, MS-1.6			MS-1.4 selected sites
Tier 3-TMDL/POC sampling							
Hg/PCB sediment survey	watershed sampling sites in 2003 similar to 2002 sites, limited sampling at selected index sites in 2003-2006					(assist by city)	MS-1.2, MS-1.6
Hg/PCB Source investigation	*tbd	*tbd	*tbd				MS-2.1 or CEP
Chlorinated pesticides & PAH in sediment	2 sites 2002?	6 sites 2002?	1 site 2002?	3 sites 2002?	2 sites 2002002?	3 sites 2002002? (assist by City)	MS-1.2, MS-1.6
Copper in stormwater				Castro Valley Creek 2003-2005, return in later years			MS-1.6
Diazinon in stormwater				Castro Valley Creek 2003-2005, track for reduction			
Trash	*2002-03	*2002-03	*2002-03	*2002-03	*2002-03	*2002-03	MS-2.1 pilot

Table 4b. ACCWP Planned Monitoring and Assessment activities in eastern Alameda County

Watershed Assessment Unit	6	7	
WAU name	Alameda Creek-northern	Alameda Creek-southern	Fy02-04 Task ID
Tier 1 -Screening Level			
Chemical-Physical Parameters	pilot screening 2002-2003		MS-1.4 sampling
Chemical-Physical, basic screening by volunteers			
Bioassessment-macroinvertebrate			WA-2.1 sampling
Biological-Physical: Fish community and habitat			WA-1.1 planning, WA-3.2 field checking
Geophysical			
Stream morphology			WA-2.1 potential
Vegetation			
Flow			WA-2.1 potential
Tier 2-More Focused			
Contaminant Chemistry	pilot screening 2002-2003		MS-1.4 selected parameters
Nutrients			MS-1.4 selected sites
Pathogens			WA-3.1 potential
Toxicity			MS-1.4 selected sites
Geomorphic And Sediment Source Analysis			
Tier 3-TMDL/POC sampling			
Hg/PCB sediment survey			MS-1.2, MS-1.6
Hg/PCB Source investigation			MS-2.1 or CEP
Chlorinated pesticides & PAH in sediment	1 site 2002002?	included in Niles site	MS-1.2, MS-1.6
Copper in stormwater			MS-1.6
Diazinon in stormwater			
Trash	*2002-03		MS-2.1 pilot

III. PLANNED TASKS AND ACTIVITIES

This section describes subtasks for the tasks listed in Table 1. The objective and long-term strategy for each subtask is given for the Plan period (July 2001-June 2008) followed by specific activities projected for FY02-04. Ongoing programmatic tasks not included in this section include planning, management and reporting for each component, along with evaluation and updating of this strategy. Monitoring of the implementation of other Program activities will be addressed primarily through reporting of the respective components, although some special studies may be performed at the request of other Program subcommittees.

III.A Watershed Assessment

Task WA-1: Develop and maintain a GIS resource for watershed information

WA-1.1 **Watershed Inventory:** Provide base layers and basic map products for watershed assessment activities of Program, member agencies and interested public.
Long-term: Map base information (watersheds, landcover/landuse, creeks and channels) and assessment data (screening data, fisheries habitat and other biological indicators, watershed project areas) for all WAUs.
FY 02-04: Complete preliminary mapping of initial group of pilot watersheds (including Codornices, Sausal, San Lorenzo, Old Alameda and Laguna Creeks); refine existing information and fill data gaps for channel condition and riparian zone characterization. Identify additional priority watersheds for mapping.

WA-1.2 **Watershed assessment planning:** Develop a framework for ongoing coordination and planning of watershed assessment, and prepare Multi-Year plan.
Long-term: Evaluate assessment status, interpret data at landscape level, adapt watershed assessment strategy as needed. Coordinate assessment planning and information with Regional Board staff and other agencies.
FY 02-04: Develop plan for incorporating new data; Identify needs and priorities and consult with the local co-permittees or other watershed partners

Task WA-2: Use a variety of indicators to assess the condition of streams and watersheds

WA-2.1 **Indicators of creek health:** Develop and test indicators of general watershed condition.
Long-term: Rotate Rapid Bioassessment macroinvertebrate surveys through relatively natural stream reaches in all WAUs. Support regional coordination for protocol standards, data sharing and biocriteria development, subject to funding by BASMAA or other sources. Develop and test a strategy for use of screening-level flow and physical habitat indicators.
FY 02-04: Continue macroinvertebrate community sampling in Sausal, San Lorenzo and Mission-Laguna watersheds; begin rotation to one new watershed. Outline a strategy for applying flow or other physical indicators of stream function, in coordination with release of Stream Protection Policy and other regional initiatives.

WA-2.2 **Volunteer Monitoring:** Increase the participation of community stakeholders in watershed stewardship and assessment, and improve coordination of volunteer groups with agencies and other stakeholders.
Long-term: Provide resources and training to citizen monitoring groups that are working with local watershed partners. Increase visibility and effectiveness by working with Watershed Assessment Resource Center (WARC) or other regional information sources.
FY02-04: Continue support of Talks in the Hallway to strengthen community involvement and interest in assessment issues; explore use of community volunteers to supplement macroinvertebrate field sampling or trash assessment.

Task WA-3: Provide useful watershed information to the Program and other watershed stakeholders

WA-3.1 **Indicators of Contact Recreation:** Improve ability to assess risks to human health from light (non-swimming) contact recreation or activity in creeks.
Long-term: Provide guidance and information on microbial risks to human health to assist watershed managers. Identify potential alternative indicators and explore strategies for monitoring pathogens or other indicators.
FY02-04: Continue support of Lake Merritt fecal coliform monitoring, and identify any other priority areas for monitoring. Use 2002 review to draft guidance or model fact sheets for municipal staff and local creek or community groups on existing tools and approaches to risk assessment.

WA-3.2 **On-call watershed support:** Support watershed management efforts led by Program member agencies.
Long-term: Conduct local pilot projects or assist member agencies in conducting watershed inventory and planning.
FY02-04: Pilot field checks of hypothetical reaches identified in Fisheries Resource Assessment Refine draft Watershed Framework to provide guidance on watershed-based management to municipal staff and other local groups. Identify candidate watersheds for focused technical support.

WA-3.3 **Website support:** Disseminate information about Alameda County watersheds and background on local watershed issues.
Long-term: Provide local watershed atlas and information resource to the public, creek groups and watershed stakeholders. Improve interactive response and coordination with other regional resources such as Oakland Museum and Contra Costa Water Web.
FY02-04: Augment watershed maps and other creek information for new section of ACCWP website to be launched mid-2002. Increase accessibility of monitoring and assessment data.

III.B Monitoring and Special Studies

Task MS-1: Characterize and track pollutants of concern which are found in urban runoff and have been identified as possible sources of impairment.

MS-1.1 **RMP contribution:** Comply with Regional Board requirements and assist with the accomplishment of the RMP's objectives to provide regional characterization of pollution in the Bay.
Ongoing: Contribution for required participation in Regional Monitoring Program,

MS-1.2 **TMDL data collection:** Characterize watershed occurrences of Pollutants of Concern.
Long-term: Program-lead surveys or studies complementing TMDLs or CEP.
FY02-04: Continue sediment sampling and reporting for Pollutants of Concern in sediment, including Mercury, PCB and organochlorine pesticides, as requested by Regional Board staff.

MS-1.3 **Baseline trend monitoring:** assess long-term trends in selected Pollutants of Concern in creeks.
Long-term: Conduct stormwater and sediment sampling as recommended by Gunther and Bernstein (2001): a) mercury, PCB, PAH and organochlorine pesticides in watershed sediments, where not already covered by TMDL or CEP sampling; b) "before and after" fixed-station stormwater sampling for copper and diazinon at Castro Valley Creek, supplemented by toxicity testing.
FY02-04: Continue stormwater monitoring in for copper; may be augmented for FY 04 subject to funding of Brake Pad Partnership fate and transport modeling.

MS-1.4 **Water Quality screening:** Provide general assessment of water quality conditions in stream reaches.
Long-term: Establish a screening strategy for water quality parameters in creeks; coordinate with physical/visual indicators and trash assessments.
FY02-04: conduct pilot screening at 10-15 sites distributed among WAUs, semiannually near end of wet and dry seasons. Screen for general parameters (temperature, pH, conductivity, DO, turbidity)and also selected chemical parameters (ammonia, nitrate, chlorine, copper, hardness, TSS). Incorporate toxicity testing or continuous temperature monitoring at selected sites and explore candidate sites for multiparameter continuous monitoring.

MS-1.5 **Stormwater database:** Improve management and interpretation of countywide pollutant monitoring data.
Long-term: Continue additions and refinements to existing Access relational database of past fixed-station sampling data; coordinate with SWAMP and other data management formats.
FY 02-04 Incorporate additional data types, refine queries and user interface, explore analyses of long-term and spatial trends.

MS-1.6 **Clean Estuary Partnership:** Support and participate in Clean Estuary Partnership.
Ongoing: Contributions to CEP under terms of MOU and guidance committees.

Task MS-2: Evaluate the effectiveness of urban runoff BMPs

MS-2.1 **Target pollutant special studies:** characterize details of distribution and impacts for Pollutants of Concern, test hypotheses.
Long-term: Conduct studies of Pollutants of concern, including investigation of potential sources in high priority watersheds. May also include identification or refinement of specific control measures. To be coordinated with CEP.
FY02-04: Visual and photo assessments of trash in waterbodies, supported by more detailed inventory at selected sites; review copper sources to stormwater in Alameda County.

MS-2.2 **Support New Development stormwater controls:** provide technical information needed to support implementation of design standards for New/Re-development as required in new permit.
Long-term: Conduct studies as needed, such as hydrological/geomorphological analyses, prototype design scenarios, BMP evaluations
FY02-04: Develop model design criteria and support HMP development.

Task MS-3: Provide technical information on management issues involving urban runoff

MS-3.1 **Special studies:** Address data gaps or management issues concerning pollutants of concern and urban runoff impacts.
Ongoing: as needed, including planning and needs assessment.

MS-3.2 **On-call technical support:** Miscellaneous technical support as needed.

Task MS-4: Coordinate planning and reporting with related monitoring efforts

MS-4.1 **Coordinate with RMP, BASMAA and CEP:** maximize effective use of monitoring resources through coordination of effort among BASMAA member agencies, the RMP and CEP.
Ongoing: Attend BASMAA Monitoring Committee meetings, participate in RMP technical review and other special purpose technical or stakeholder discussions.

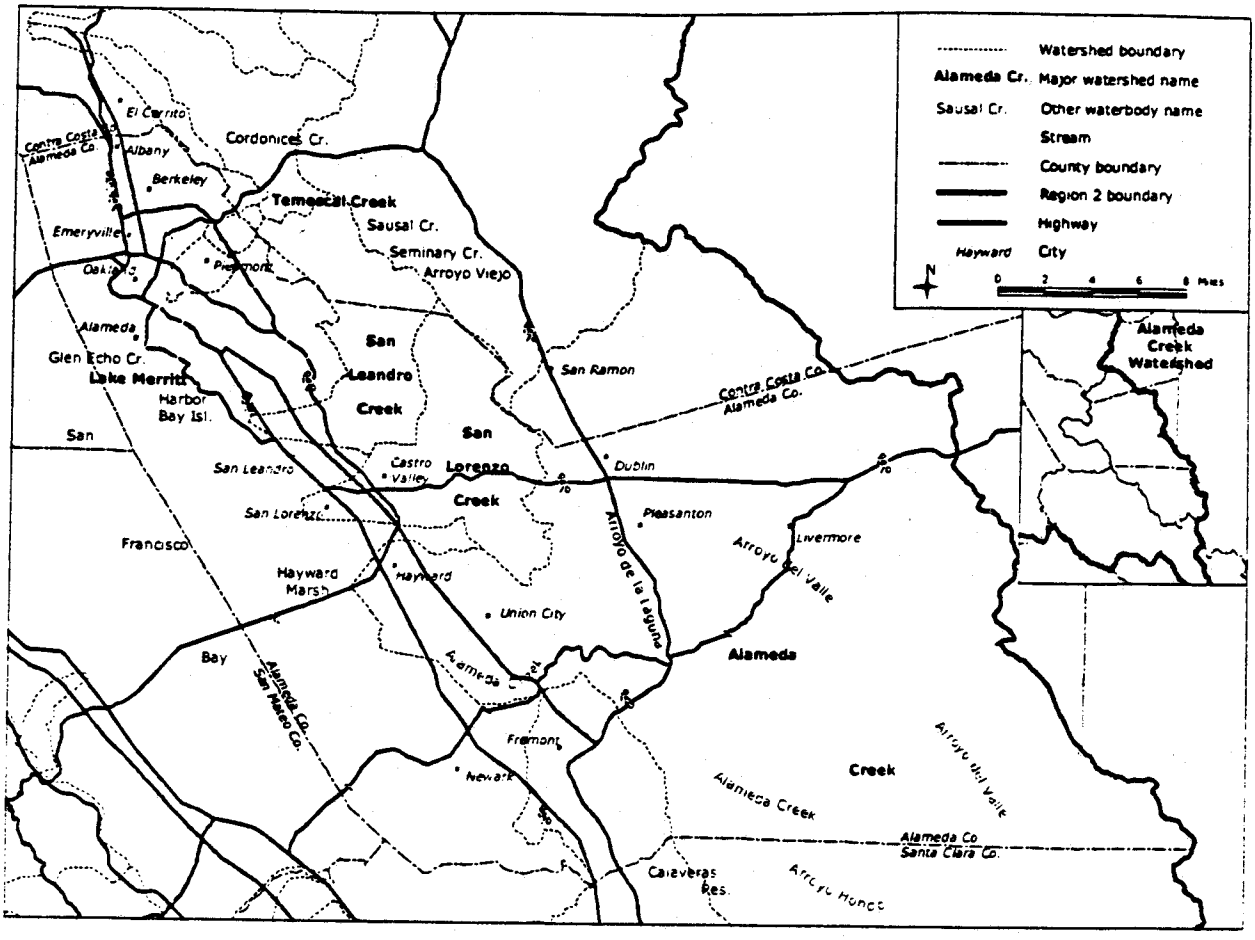
IV. REFERENCES (INCLUDING PAST REPORTS, PLANNING DOCUMENTS)

Gunther, A J. et. al. (2000). Tracking the Status and Trends of Beneficial Uses of Waterbodies in Alameda County: A Monitoring Plan for Fiscal Year 1999/2000 and Beyond. Prepared for the Alameda Countywide Clean Water Program. May 2000.

Gunther, A. and Bernstein, B. (2001). Monitoring Program for 2002-2006. Prepared for the Alameda Countywide Clean Water Program. Preliminary Draft, undated.

ATTACHMENT C

Municipalities and Major Open Creeks and Waterbodies in Alameda County



Appendix C:

Municipalities, Major Open Creeks and Significant Watersheds in Alameda County